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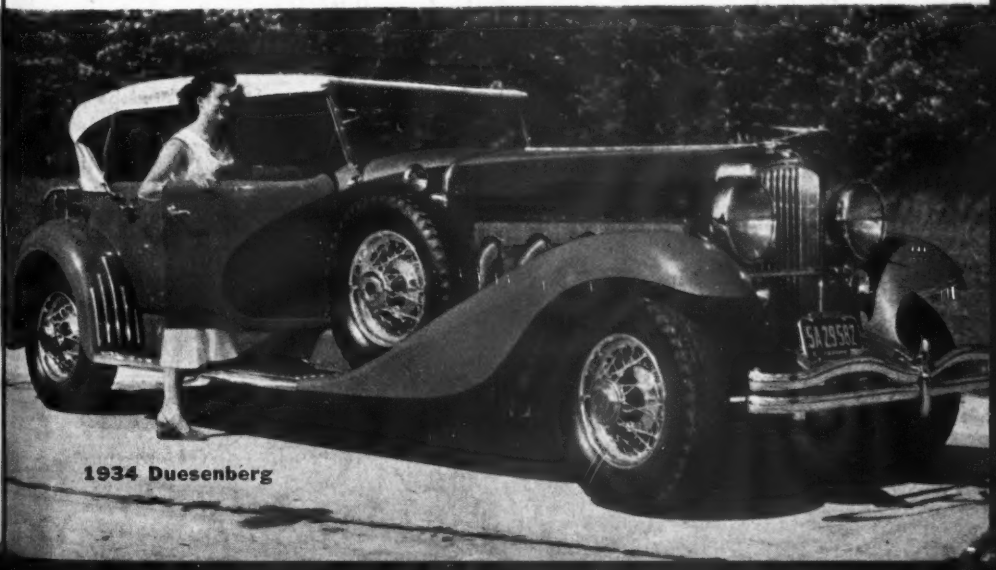

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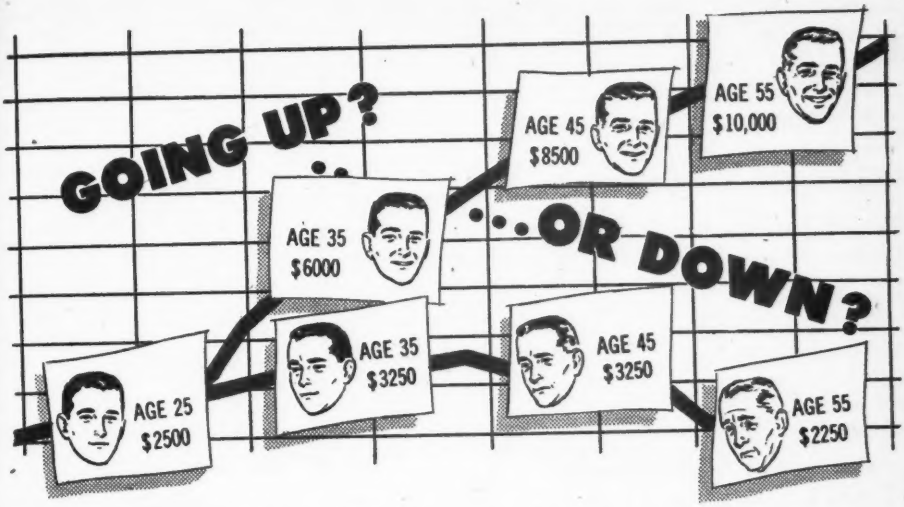

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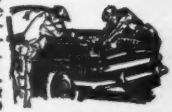

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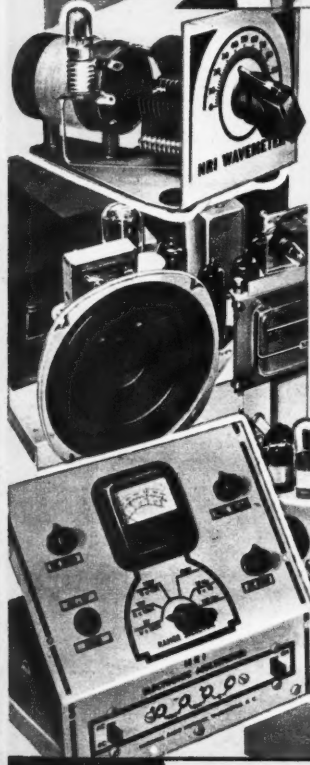

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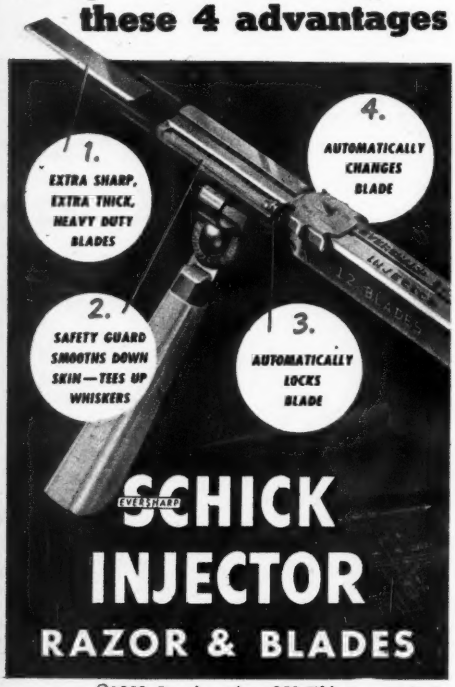

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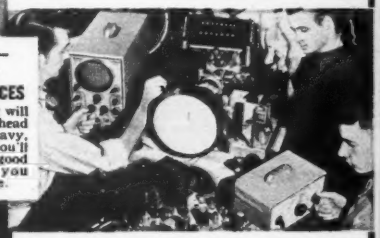

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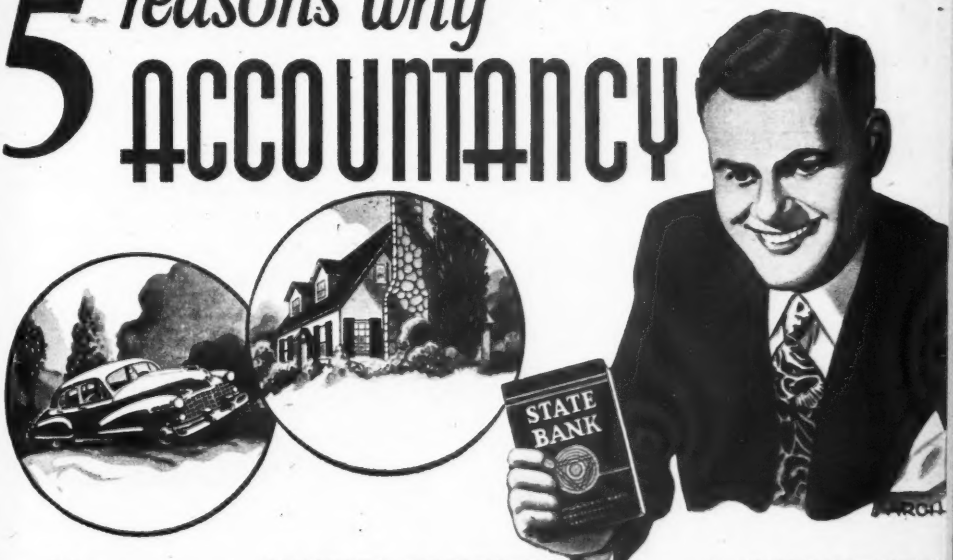

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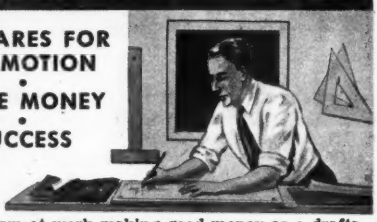

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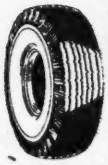

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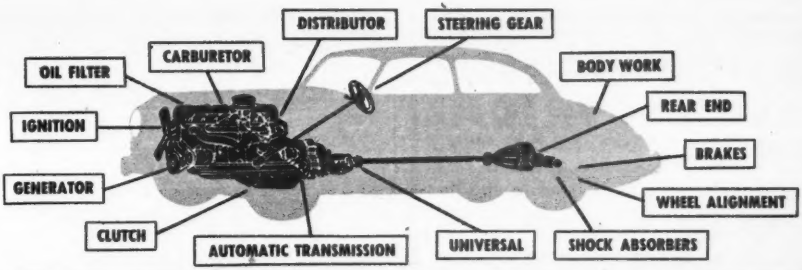

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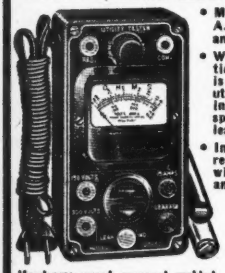

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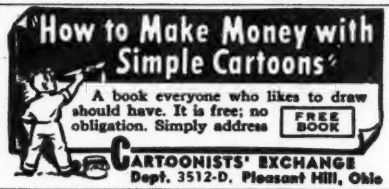

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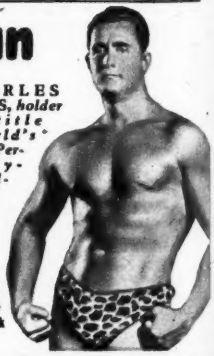

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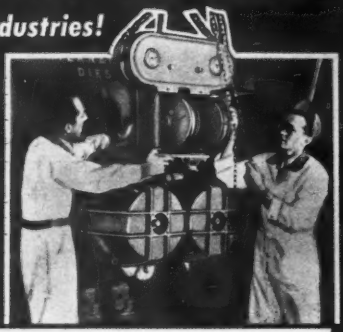

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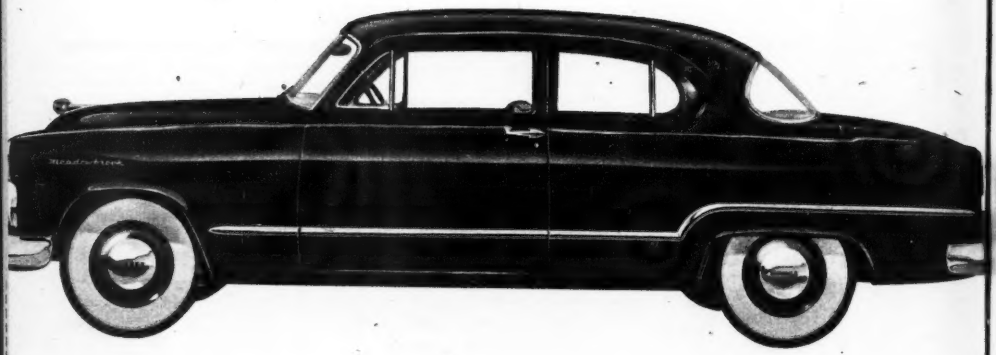

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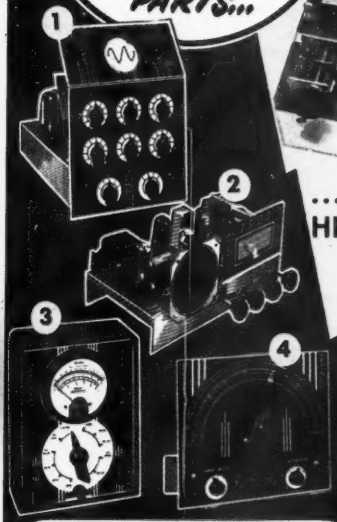

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JOSEPH H. KRAUS

Cigar and Cigarette Lighters

EXCEPT for a modified exterior, little change or improvement has been made in the design and construction of the pocket cigarette lighter. Some of the modern lighters include a reservoir for increased fuel supply, some provide a jet flame to better serve the pipe smoker. But similar items may be found in patents granted more than 50 years ago.

Many early lighters served a multi-purpose duty. One of these, in the shape of a fanciful figure, held tapers in the right hand, an alcohol torch in the left hand and when the smoker reached for a light he was treated to a spray of perfume from the mouth of the figure. This represents one of the more simple of the ornate designs used in cigar stores. Ornateness was the trend of the day and it doubtless had some influence on the design of pocket lighters which also were made in the shape of human and animal figures.

In its operation, the modern lighter is similar to those patented 25 or more years ago. We still have the "Mechanical Tinder Box" style in which sparks are produced by abrasions of a pyrophoric body such as a cerium-iron alloy against a toothed wheel or file. One such device was patented in 1911 by Viennese inventor, O. Gergacsevices. The style was copied by craftsmen during World War I for souvenir-hungry American soldiers. The cases often were made from enemy belt buckles, buttons, medals and the like. In these models the abrasive wheel was spun either directly or through a coupled second wheel.

A reverse construction appears in a series of lighters in which a steel striker holding a gas or alcohol saturated plug is brushed against the pyrophoric substance.

A second group of lighters employing platinum black or spongy platinum dates back to at least 1863. Louis Loeffler of East Cambridge, Mass., received Patent 39,488 for such a "catalytic body raised to incandescence by gas." This ability of some forms of platinum and other metals to become incandescent by the absorption of gas was used in pocket lighters using alcohol as fuel.

The previous two main groups would appear to sum up the entire lighter field. Certainly this is not a broad spread of possibilities.

Perhaps you will protest hastily that the new compressed gas lighters should be considered; also those giving jet flames. Then you may want to add the "glowing wick" types. However, all these operate on the same principle, the difference being merely the fuel and how it is burned, i.e., either with or without pressurization. Electric styles may be eliminated from consideration because they are not yet a practical pocket unit.

You can fill an entire page with the things wrong with the average pocket lighter. Its operation is much more expensive than matches. Fuel storage capacity in most is low. Present methods for filling are troublesome and inconvenient. Evaporation and leakage is considerable, particularly during airplane flights. A poor seal and the reduced pressure of the higher altitudes are responsible, but these things could be corrected. Flints are too short. The methods for replacing both flints and wick should have died with the muzzle-loading rifle. Lighter parts get out of order and wear too rapidly for an article which is given so little but careful use.

Although it is true that nearly every inventor could improve one or more facets of the cigarette lighter design or construction, it is the writer's opinion that the entire treatment needs complete re-evaluation. One angle of approach could be along trends which were started some 30 years ago—the "Perpetual Match." One of these of recent development takes the shape of an ordinary pencil of solid fuel. When the end is struck

[*Continued on page* 22]

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PATRICK D. BEAVERS
Registered Patent Attorney
923 Columbian Building Washington 1, D. C.

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CARL MILLER
REGISTERED PATENT ATTORNEY
WOOLWORTH BLDG., 35th FLOOR, 122B
NEW YORK CITY

Invention Clinic

[*Continued from page* 20]

like a match it burns like one. However, the device can be ignited only by brushing against the holding clip. The same rod may be snuffed out and relighted a thousand times or more. So far this item is a chemical curiosity and is not on the market.

Another approach might be to utilize chemicals which develop heat when in contact with the air, even to the extent of bursting into flame. By controlling the air supply the heat also may be controlled. The big problem here would be in the construction of a container strong enough to prevent accidental breakage and some method would be needed for supplying refills in non-inflammable form. One of these chemicals, lead tartrate, is remarkably safe in its commercial form but becomes active after it is heated then allowed to cool in an oxygen-free atmosphere.

The possibility of using electricity offers another avenue for attack. Unfortunately, the cost of replacing batteries and the weight of the cells are objectionable.

Perhaps one of the largest single factors contributing to the popularity of the pocket lighter was the development of the entirely automatic action unit which operates merely with the pressure of a button or lever. An early patent along this line was granted in 1924 to Louis Aronson, Newark, N. J.

[*Continued on page* 31]

INVENTORS

Send for PATENT INFORMATION Book and INVENTOR'S RECORD without obligation

GUSTAVE MILLER
1224MI Warner Building
Washington 4, D.C.

REGISTERED PATENT ATTORNEY
Patent Attorney & Advisor U.S. NAVY DEPT. 1938-1947
ASSOCIATE EXAMINER U. S. PAT. OFF. 1922-1929
PATENT LAWYER

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JOHN N. RANDOLPH
Registered Patent Attorney
209 Columbian Building Washington 1, D. C.

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A Tough One

I've got a tough one. I found this picture of an old car in an old album. Can somebody tell me the name of the car?

John S. Boidenan
Kalamazoo, Mich.

Based upon years of research and investigation into the origins of America's rarest cars, we venture the opinion that this is a Model T Ford.

The Woman Always Pays

For several months I have been experimenting with refinishing wooden head golf clubs. My procedure has been limited to the use of both varnish and shellac. As of yet I have not been successful in producing a finish anywhere near as lasting as the original one. Can anyone come to my aid? I've been experimenting with my wife's clubs.

William A. Little
Houston, Tex.

If ever a man needed aid. . . .

Burying Joe Doe

Kindly send the address of the Joe Doe Paint Company of which you speak so highly in your article Does Your Home Need A Paint Job? (Sept. page 106). This information I need with a view to the establishment of a trade.

Kenneth D. Carey
British West Indies

We're sorry we misled you, Mr. Carey, but we must admit that we have perpetrated a hoax. Joe Doe does not exist. Nor does his company. It was a symbolic name—Basil Fitz-Gibbons or Tommy Atkins might just as well have been used. We hope this will not precipitate an international incident.

New Mexico We Love You

In the October story called Rolling Home (page 60), Mr. Oscar Trull says that he intends to visit all 48 states, then Canada and New Mexico.

Well, let me inform him—New Mexico is included in those 48 states. And I can prove it by my income tax return.

John R. Peters
Carsbad, N. M.

Somebody made a booboo. And we're terribly sorry. Now—for irate residents of New Mexico who have been writing us indignant letters—we'd like to go on the record as officially stating that New Mexico is indeed one of the 48 states.

MI On The Upgrade

In your October story, World's Steepest Railway (page 62), you speak of the 71 per cent grade as being almost straight up. If you check on your trigonometry, you'll find that a 100 per cent grade is only 45 degrees which is only half way to being straight up. A 71 per cent grade is only an angle of around 35 degrees.

H. E. Bolton
Los Angeles, Calif.

[*Continued on page 29*]

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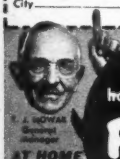

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Dear Editor—

[*Continued from page* 24]

● *Used-Car Humor*

The enclosed photo was taken on a used-car lot in Bloomsburg, Pa. I learned from a salesman that the idea has really boosted sales. Clever, Mr. Editor?

Kenneth J. Corse
Bloomsburg, Pa.

Devastating, Mr. Corse.

● *Looking Down On the Stars*

Am I laughing! In your January 1952 issue you printed a story on astrology (They Tell You About Tomorrow, page 57) in which astrologer Charles Jayne, Jr. made some predictions.

His major astounding feat of clairvoyance was a prediction of war with Russia in the first half of 1952.

Well, here it is the second half and still no boom boom. I demand a recount.

Jack Alex Morton
Chicago, Ill.

Now let's not be beastly to the astrologers. After all, think how much worse things would be if he'd been right.

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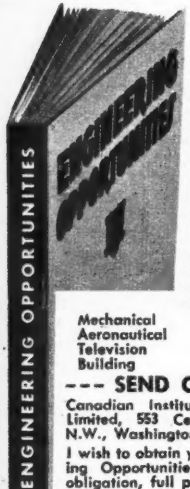

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Invention Clinic

[*Continued from page* 22]

It is not recommended that the inventor give any thought to tricky lighter design. The Patent Office records are full of such novelties, most of which never will find the dawn of a successful market.

Thus, you should avoid the combinations of a lighter with a cane, golf club, fishing rod, pen or pencil, ring, bracelet, wallet, pocket watch, even though the watch is wound each time the lighter is used. Patents for all such combinations may be found in the records. Similarly, the lighter should not depend for its future on the fact that it is to be fitted into a model of a cannon, pistol, helmet, bullet, gas pump, ship's wheel or airplane. Also be careful to stay away from any design which, as one patent describes it, "automatically lights when lifted." Such a lighter could prove dangerous.

We doubt that lighter manufacturers are anxious to pay fabulous sums for new lighter designs. Many such companies have a stock of patents which likely never will be produced commercially.

But the production of lighters is quite simple. Almost any small machine shop can make such articles. The public will purchase any good item in this field if the price is right, particularly if it is guaranteed to give satisfaction. Many stores will stock the articles if given the same assurance of trouble-free performance or replacement.

The inventor should study any new design thoroughly. He should determine to the best of his ability if the article represents a real improvement or is merely a minor change easily duplicated by other manufacturers. If the new design is a chemical construction, the possible fire hazards should be investigated. The thing may be non-transportable except under special label, and it may be that the store keeper could not stock it. Life, cost and weight of an electrical unit should be measured against well-known types of the more popular varieties.

For any adequate comparison you should have a working model. This should be good, not just slapped together. If the model costs you more than $25.00 to produce you might save a few dollars by requesting your patent attorney to report on a search first. In either case, both model and search should be made before you involve yourself in any great expense.

The ideal next step would be for you to finance both production and sales yourself. If you intend selling directly to some manufacturer, your hopes are dim. ●

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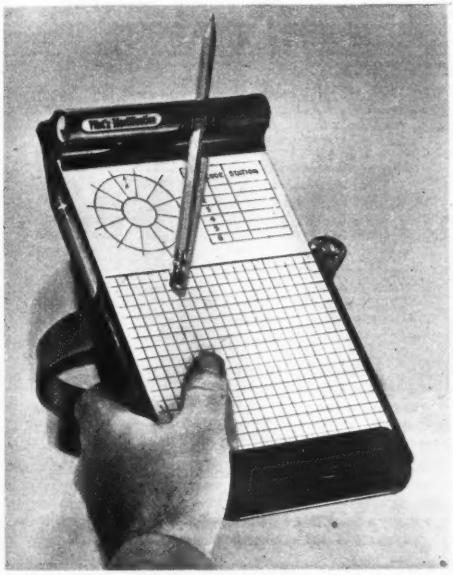

Made of plastic, snaps quickly to leg with web strap. Plot cards are held in place by clamps at top and bottom. Two compartments at sides hold pencils, coil and spring provides pencil rest. Sharpener is built in. Has accessory brackets for stop watch and night light. Semco Research Inc., 212 W. Florence Ave., Inglewood 1, Calif.

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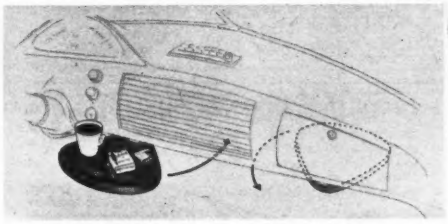

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[Continued on page 35]

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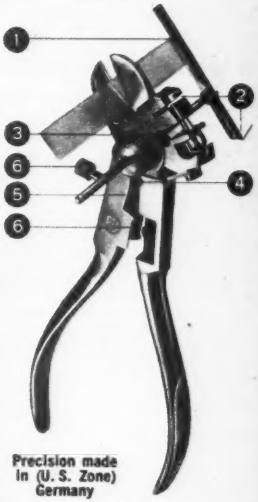

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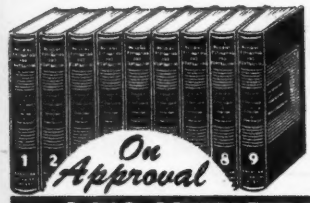

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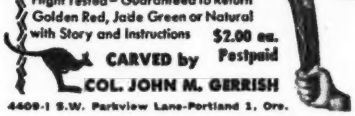

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LOOK ON PAGE 42

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continued from page 33

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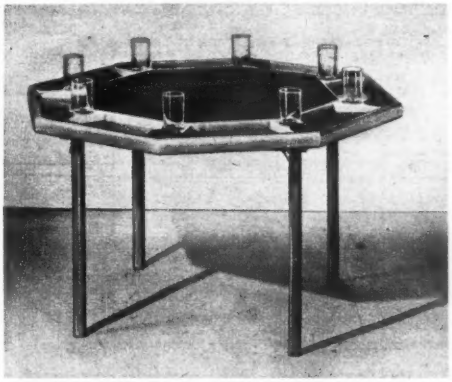

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[Continued on page 39]

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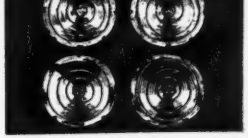

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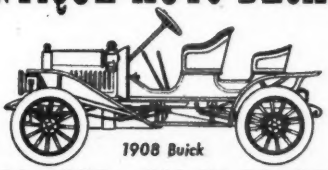

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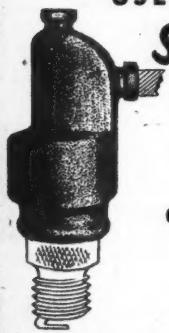

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Give to conquer cancer

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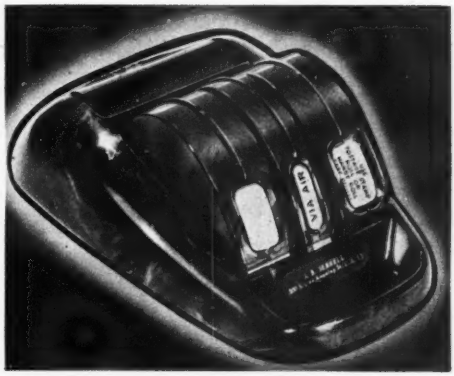
MIscellany

continued from page 35

Handy Roll Deskit



Prepare your mail quickly and easily with this plastic sealer which combines stamp sticker, label and tape dispenser. Deskit has built in moistener of roller type. One hundred air mail stickers, 480 inches of tape are included. Salsbury Corp., 1161 E. Florence Ave., Los Angeles 1, Calif.

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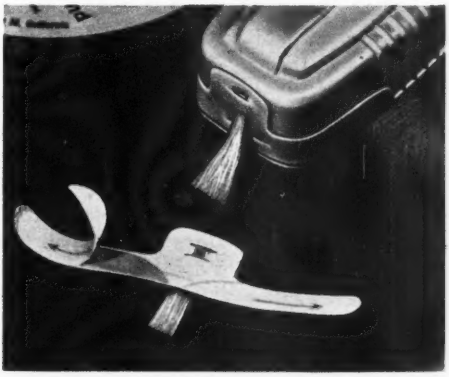

Remove dirt and dust from grooves on records with a tiny brush which cleans each groove just before needle reaches it. It is attached to tone arm by means of die-cut patch of Mystik Brand Self-Stik Tape made of cloth. Permo-Fidelitone, Chicago.

[Continued on page 41]

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700-16	5.06	670-15	4.36	700-20	11.56	800-20	16.96
650-15	4.66	710-15	4.76	750-20	12.76	1000-20	18.96
760-15	5.06	550-17	5.56	825-20	16.96	1100-20	19.96

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600-16(6)	5.76	640-15	5.66	750-16(8)	9.76	750-20(8)	13.96
650-16	5.76	670-15	5.66	700-17	10.76	750-20(10)	15.06
650-16(6)	6.96	710-15	6.46	750-17	11.66	825-20	16.96
700-16	6.76	760-15	6.56	750-15	13.56	900-20	18.96
750-16(6)	8.76	800-15	7.16	825-15	10.06	1000-20	19.76
550-18	5.96	820-15	7.36	600-20	10.66	1100-20	20.96
550-17	5.46	670-16	6.66	32x6(8)	11.56	1200-20	23.76
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650-16	5.59	640-15	5.59	750-16(8)	10.89	750-20(8)	14.19
650-16 (6)	7.29	670-15	5.79	700-17	11.99	750-20(10)	17.99
700-16	7.19	710-15	6.39	750-17	12.99	825-20	20.49
750-16	7.79	760-15	6.59	750-15	21.69	900-20	10.29
525-18	6.89	800-15	7.29	825-15	23.79	1000-20	19.89
550-17	5.59	820-15	7.29	600-20	9.89	1100-20	22.89
650-15	5.39	670-16	6.39	650-20	11.49	1200-20	39.99
700-15	5.39	760-16	7.29	32x6(8)	11.89	1000-22	22.89
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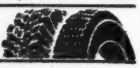
710-15	11.95	600-16	9.95	700-15	11.95
760-15	11.95	650-16	10.95	800-15	11.95



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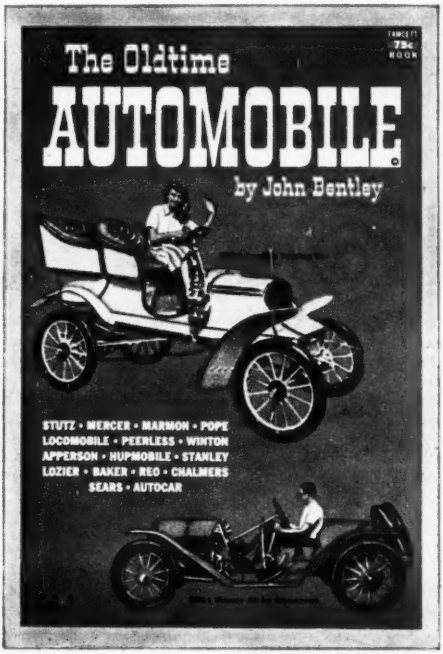

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continued from page 39

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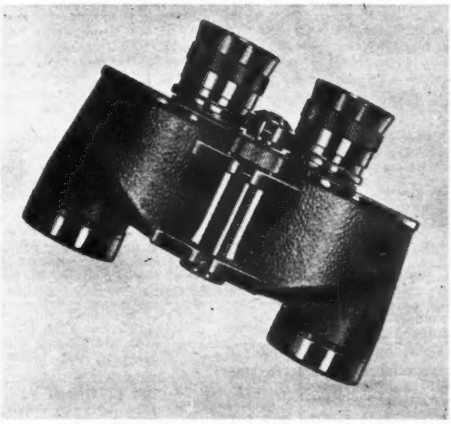

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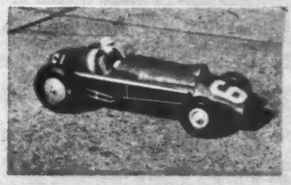

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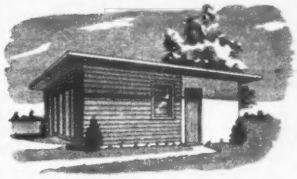

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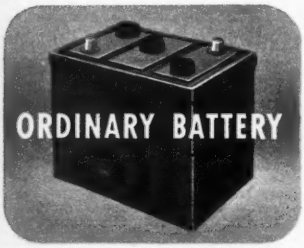
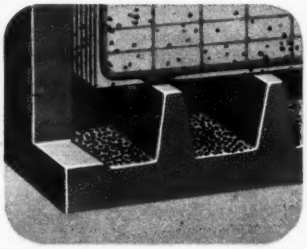
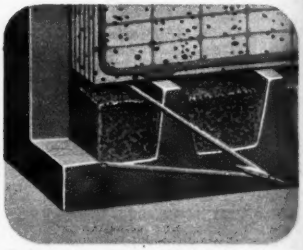


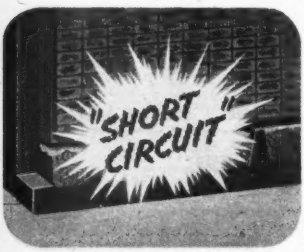
1. In ordinary batteries, small particles keep flaking off positive plates . . .



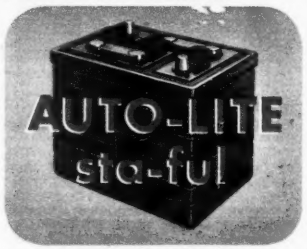
2. so ordinary design batteries must have large sediment wells at bottom of case to hold these particles.



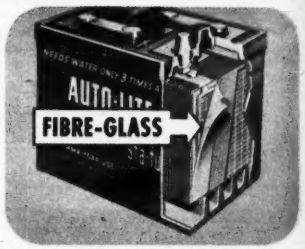
3. Even these sediment wells in ordinary batteries aren't big enough to hold flaking particles from positive plates . . .



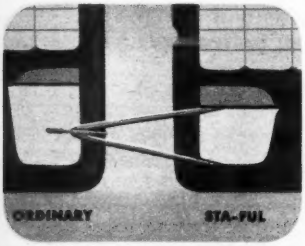
4. so particles pile up and short circuit plates, causing failure.



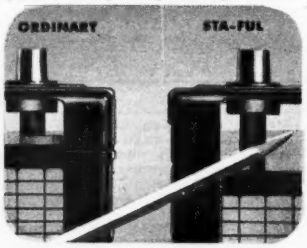
5. But in the Auto-Lite "Sta-ful" Battery, every positive plate has a Fibre-glass retaining mat protecting it . . .



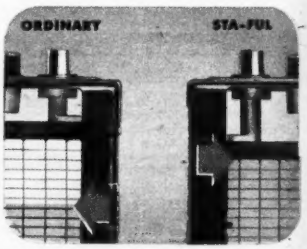
6. to hold the active materials in place to reduce shedding and flaking.



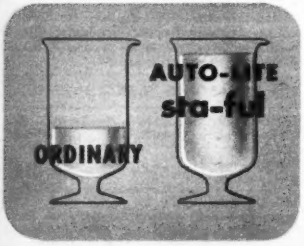
7. Side-by-side view shows that the Auto-Lite "Sta-ful" Battery doesn't need the extra space at bottom that ordinary design batteries do. So extra space . . .



8. in "Sta-ful" Battery is moved to top where it holds more electrolyte, giving room for over 3 times the liquid reserve in the "Sta-ful" as in ordinary batteries.



9. Here's proof of performance! Equal water evaporation shows how the Auto-Lite "Sta-ful" extra reserve keeps plates covered and active.



10. That's why "Sta-ful" needs water only 3 times a year in normal car use. Auto-Lite "Sta-ful" Batteries give longer life, too, in tests conducted according to minimum life cycle standards.

AUTO-LITE BATTERY CORPORATION
Toledo 1 Ohio

AUTO-LITE

sta-ful

...needs water only 3 times a year

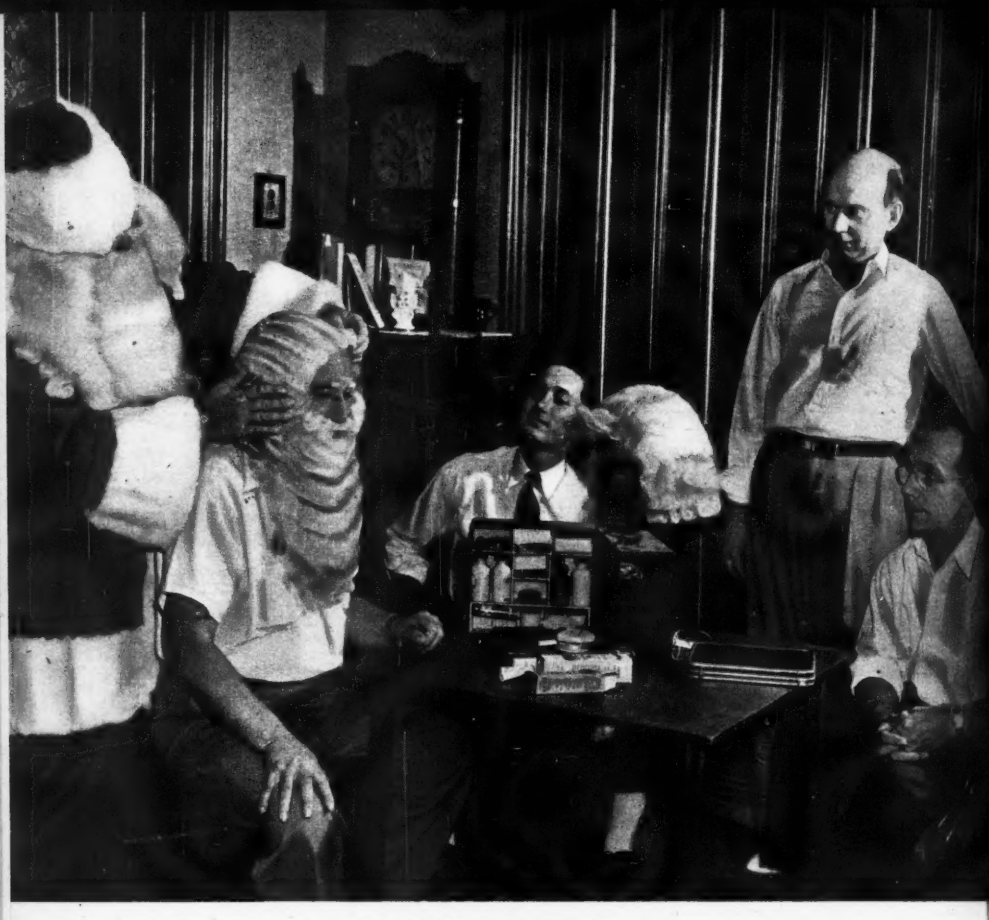
IN NORMAL CAR USE

Santa Clauses, Salami-Tyers and Soap-Tasters

Like to join the Brotherhood of Odd-Jobholders? Maybe some of these weird occupations aren't difficult, but they're certainly unique.

By E. I. Grinda

EVERY year during two weeks of October and November, men from all over the United States gather at the most unusual school in the world—Santa Claus



Santa Claus has to learn make-up at Charles Howard's Santa Claus College in Albion, N. Y. This school for St. Nicholas stresses the fact that children can easily spot a sloppy Santa. Students even learn to deal with "playful" tugging at false whiskers.

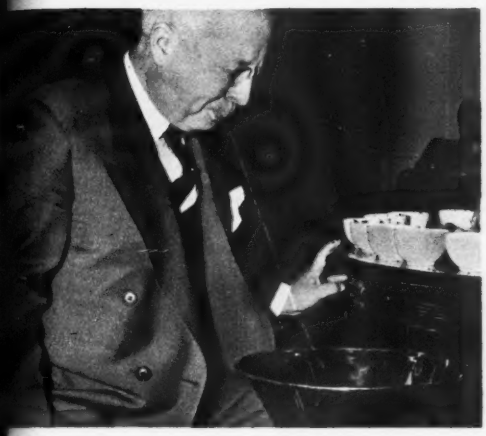
College. In Albion, N. Y., they study to be genial St. Nicks, sent there by department store managers who have found that their most acute problem near the end of each year is where to get a good reliable Santa Claus.

Eighteen subjects are covered in the short but intensive course—child psychology being one of the most important. Students must learn the origin, history and meaning of Santa Claus. Without that inner understanding, there is no use in putting ón a Santa suit. Then there are classes in dressing the student in the traditional costume and explaining the reason for color, trimming and design. In addition, they are taught the art of make-up.

If, at the end of the course, a man satisfies Dean Charles Howard, he qualifies for a Bachelor Of Santa Claus degree and goes out into the world, thoroughly prepared for his job.

This is a job, you say? Well, it's only mildly unusual when you consider some others, for thousands of Americans are working at an enormous variety of weird occupations.

There's Mr. Jones, the sexamian, for instance—he tells the sex of baby chicks. Then, there's Jim, the dishwasher, better known in the trade as a pearl diver. And Ken, the reducer, who makes a living cutting out curves in women's shoes. A man who is known as a bubble pricker works in a sausage plant pricking air bubbles in finished sausages. In another plant, women put labels on teabags. They are called teabag taggers. And in still another place, there's a guy who spends all his time tying the ends of salamis.



Powdered-egg taster Edith Litt, top, claims she never swallows food at her U. S. Agriculture Dept. job. Neither does tea-taster Robert A. Lewis, above. Here he spits out a mouthful of tasty Oolong.

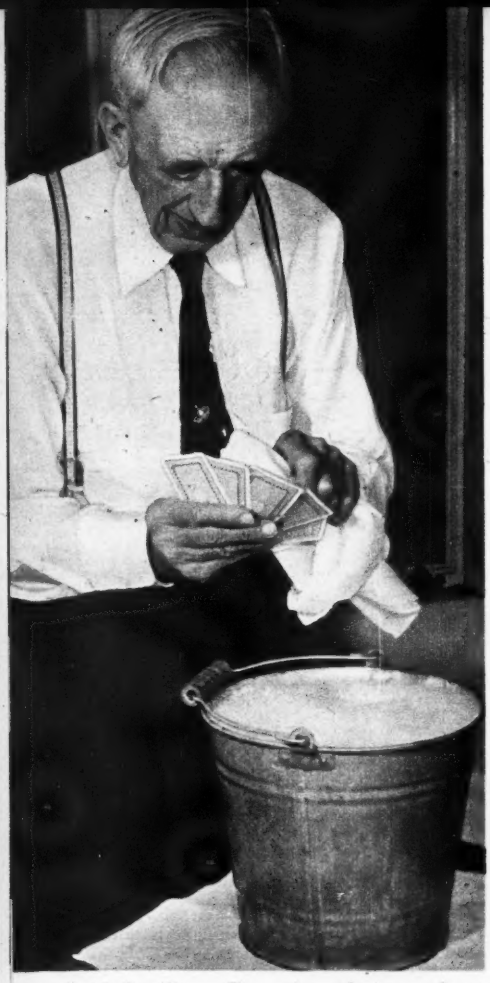
Feather merchant Joe Weinstein, top, sells fancy plumes to everybody from fan dancers to Indians. End man to millions of salamis is Joe Colp, above. He ties the tips of these gourmet's delights.

Many existing jobs would seem fantastic to the average wage earner who works as a bank teller, stenographer or lawyer. But they certainly do exist—perhaps just a few blocks down from your office, as a matter of fact. Let's look at some of them.

The little man stood on the pier in Hamburg, Germany, clutching the handle of his butterfly net and peering anxiously around the door. Although debarking passengers eyed him suspiciously, the longshoremen smiled knowingly. They'd seen him around before.

Who was this odd character? Well, this man is a catcher for the Hamburg Zoo. From ports in Argentina, vessels loaded with quehracho wood leave for Hamburg. The catcher waits until the cargo is unloaded and piled onto the docks for further transport; then his job begins. In the hollow trunks of the trees many small animals and reptiles reside. When the trunks are unloaded, these creatures are jarred. If any survive this ordeal, they are promptly pounced upon by the catcher and his net. He collects his finds into small boxes and deftly hustles them off to the zoo where they will be displayed to amuse and educate the curious public of Hamburg.

One Man's Headache, the radio soap opera, is on the air. Actors and actresses are sitting around the microphone reading their lines. A door creaks open, a woman's voice shrieks and then a baby begins to cry. Ruth Patterson is sitting next to the sound effects man in the adjacent room, crying into a pillow. She is so effective in her job as baby crier that many women listeners call the radio studio to ask the program



Out in Las Vegas, Nev., where playing cards are a vital part of the economy, Dutch Bandholz spends his time washing cards for one of the gambling houses. He claims a secret formula prevents curling.

In Chicago's Lincoln Park Zoo, Harvey Carlisle goes about his job as beautician to pachyderms, top. From a vantage point in the Los Angeles Library, Sam Wardlaw, above, spies on book misusers.

manager if they stick pins into a baby to make it wail. Ruth cries on cue for five programs a day. She's been doing it for eight years.

There is nothing unusual about Bill Smith's name but there is about his job. He is a shadow thrower. Mr. Smith operates a 7,000,000-candlepower searchlight at a New Jersey airport. His shadow throwing activities begin when a plane is due.

First, he stabs the darkness with his brilliant light. Then, wearing a heavy overcoat for protection from the heat, Bill steps in front of the light and projects his body in silhouette over the nose of the plane to shield the pilot's eyes. Smith has been doing this job for ten years and he's the only professional shadow thrower. "It's light work," he says.

Many of the beautifully groomed thoroughbred dogs and cats in the fashionable corners of New York City look snooty to ordinary mongrel human beings. Well, maybe they should be snooty—many of these well-dressed title winners have their own special foods served to them whenever the inclination hits them. Mrs. C. L. Davenport, a dog dietitian of Manhattan, offers a special catering service for them. Every customer's dog is listed in her files by name, breed, coloration, weight, foibles and habits. She serves a regular menu, specially prepared, for each dog listed and watches each dog's weight carefully. If he needs

Fruit and vegetable painter Dolores Tourangeau, above left, colors plaster delicacies as grading guides for government inspectors. Muscle man Buck Kartalian, above, tests furniture durability.

Chute the chuter Mike Reynolds is the guy who keeps the package slides from jamming at Macy's Department Store in New York. One snagged hockey stick can be the cause of a terrific tie-up.

to trim off a bit of poundage on his left flank, she prepares a diet to do it.

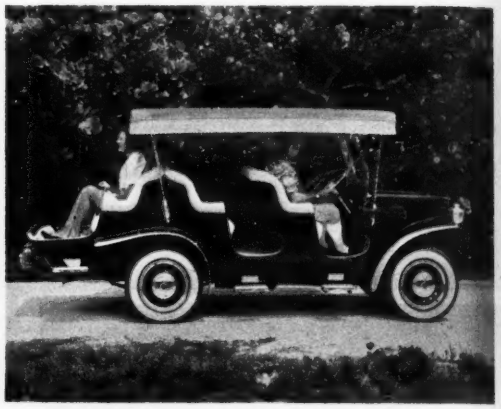
The old expression about having too many thumbs can't be employed to describe Harry Davis of Newport, Conn. He has too many toes. A new neighbor looked into his shop window one day and, after recovering from the first shock, reported what she saw to the police. On investigation, they found Harry's shop floor covered with realistic wooden toes. Harry Davis makes a living fashioning them for artificial wooden legs.

In Hamilton, Ohio, behind voluptuous leather-covered books on subjects of animal lore, a young woman sits with paint and brush applying color to small round glass disks. She makes phony eyes for extinct animals of all kinds. The history of every animal, bird and fish must be carefully studied, drawings must be found for examination, coloration and environment of every animal or bird must be considered before any attempt is made to make the eyes.

A walk through the park is not a mere pleasure jaunt for Jack Harvey, deep in the heart of Texas. It's a profession—Jack walks dogs. He's a professional dog walker, catering to guests who have brought along their pet pooches for a stay at hotels and resorts. Before Jack signs a contract to walk a dog for the duration of the owner's stay, he acquaints [*Continued on page* 162]

NEW in SCIENCE

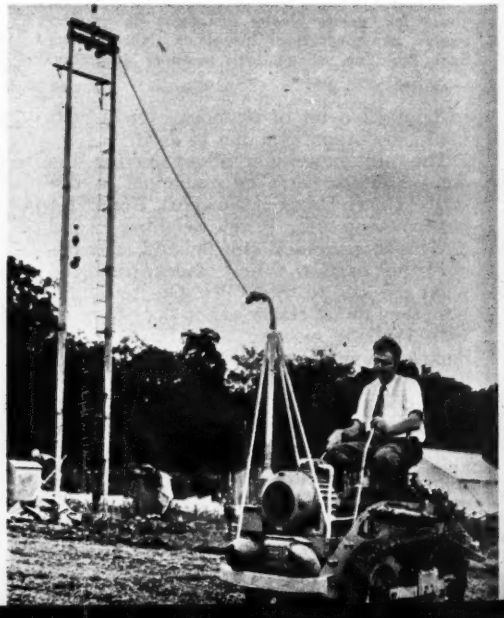
Hydrofoil Bus is claimed by its German inventor to be the fastest passenger boat in the world. In a demonstration on Lake Lucerne, Switzerland, it carried 32 people 50 mph. Motor is 350 hp. Hydraulic wings lift it high in the water.



Motor Surrey designed by W. A. Anderson of Bermuda looks like a carriage, runs like a car. Built according to Bermuda limits, it is 166 inches long, 64 inches wide and 14 horsepower. It can travel 15 mph in town and 20 mph in the country.

Mail Pushcart replaces the usual mailbag for Irving Wonnacott of Oak Park, Ill. Local post office tested several models to ease delivery of magazine and periodicals, decided on this one. It holds more than bag, saves wear and tear on postmen.

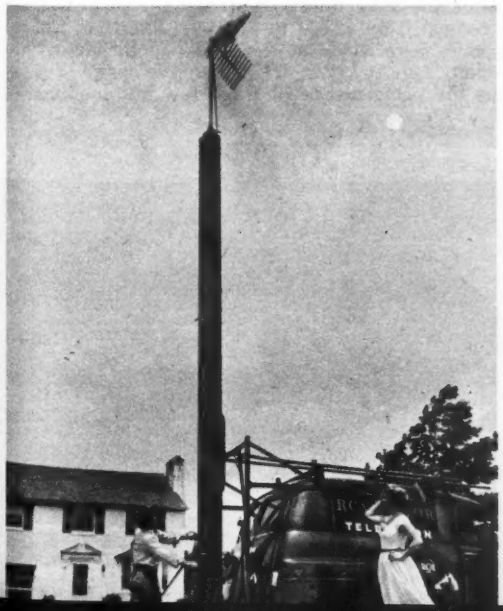
Electric Tractor is being tested in Berkshire, England. It is driven by an electric motor powered from a main pylon through a thin cable which pays out automatically as tractor drives away. Counterweights take slack. Covers five-acre plot.



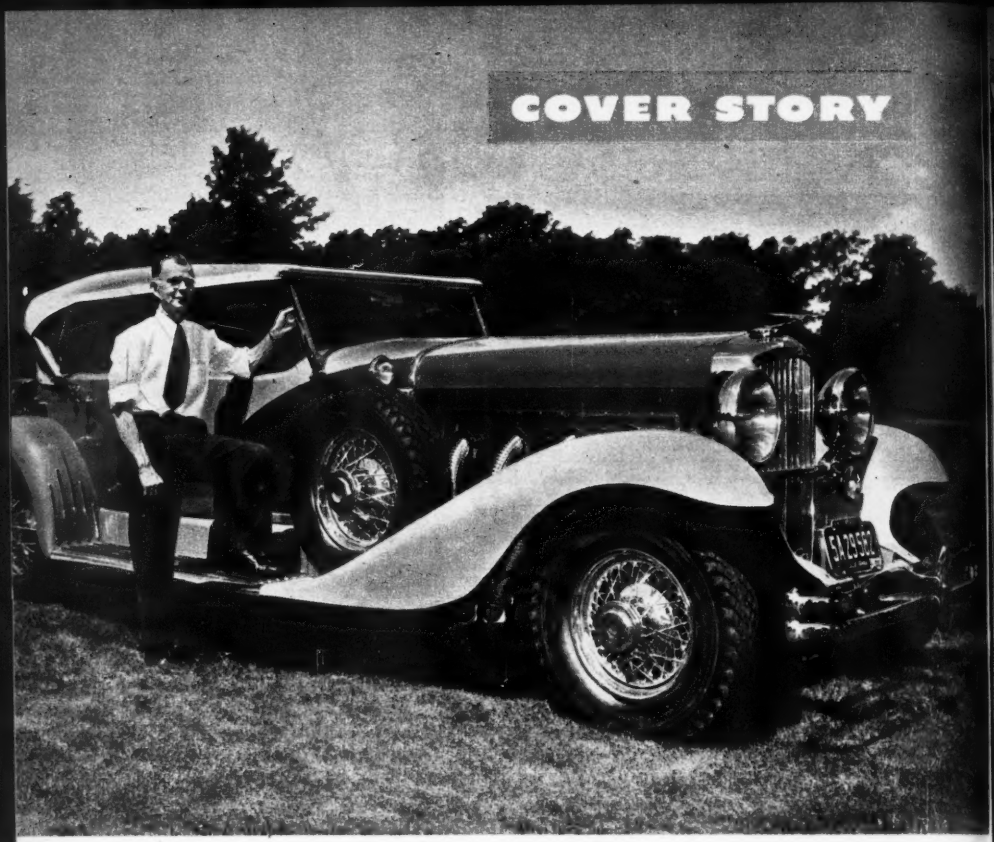
Pocket-Size Recorder shown in Frankfurt, Germany, is wire type 6½x1x4 inches and weighing two pounds. It records two and one-half hours on two small batteries or can be plugged into wall outlet. Mike is hidden behind watch. Price: $162.

Shark Shocker invented by Henry Burkey is designed to protect shipwreck victims against sharks and other carnivorous fish, not against pretty models such as Virginia Hopkins shown here demonstrating it. Device emits powerful electrical jolt.

TV Tester designed by RCA will tell you whether your district ean pick up the nearest programs and what type antenna will be needed. Tower on truck can be raised to height of 70 feet, tunes in receiver to determine if signals will be satisfactory.



Sideways Trombone was invented by David Shuman of Brooklyn, faculty member of Julliard School of Music. It enables boys to study the instrument at an early age by shortening the arm movement. Also prevents accidents to persons in front.



1934 Duesenberg

THE most fabulous American stock car ever manufactured was the incomparable Duesenberg Model J, a magnificent 265-horsepower job that could do 89 mph in second gear and 116 in high. Built strictly for the carriage trade that wanted and could pay for the very finest (the chassis cost $8,500; custom bodies ranged from $2,500 to $16,500), less than 500 of these great cars were made at the Indianapolis factory during the company's short (1929-37) productive span. Yet so fantastic was the performance of these few automobiles

195? Chrysler

Rear-seat windshield and cowl, top, lift up to let passengers in or out. Besides the usual instruments, the Duesenberg's dashboard had a tachometer, brake-regulator and altimeter.

With a supercharger, which engine at top does not have, Duesenberg developed 320 hp. Owner Gore added nameplate to satisfy the curious. Car's name was never on a new Duesenberg body.

(with a supercharger they could go 130 mph) and so luxurious and beautiful were their fine custom bodies created by the world's foremost coachbuilders, that the name and fame of Duesenberg will live a long time.

Today, possession of a well-kept "Duesie" is an eagerly sought but seldom satisfied ambition of thousands of fanciers. One proud owner is John Gore of Ft. Wayne, Ind., shown on the opposite page with his 18-year-old phaeton. •

NOBODY knows just when you and I will be able to walk into a Chrysler showroom and fork over a fistful of $1,000 bills for a duplicate of this lush convertible, the C-200, designed in Detroit and done up in great style by famed Italian body-builder Ghia. But the Chrysler people are exhibiting this experimental "sports-type" car all over the country and if enough of us, with enough dough, want to buy one, presumably we will get the chance—some day. Maybe.

Note the spring counterbalanced device for unlimbering the spare wheel easily. •

Rugs à la Carte

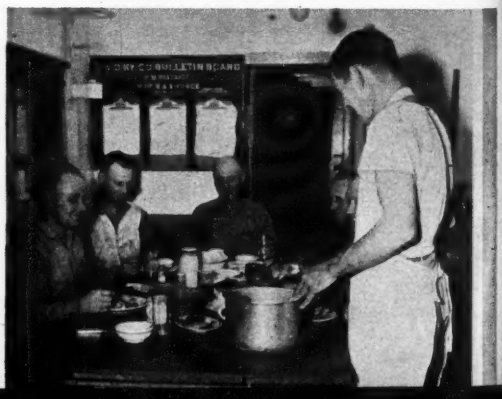
Williamson keeps his warp tree loaded with five or six different colors. His threads are unusually strong with a nine-pound breaking strength and he uses a 27-inch stretcher to keep his rug line straight. Recently he bought a wooden loom with automatic shuttle.

FROM ragout to rags is the story of Robert Williamson, railroad cook for the Chesapeake and Ohio. Not only can he whip up a stew that will make your mouth water, but he's an accomplished rag-rug weaver, besides. Weaving is just a hobby, however, and he's turned down a business offer from one of the world's largest mail-order houses. He has sold some of his rugs but not for profit. His price for a five-color, 27x54-inch job is $3, hardly more than the cost of the warp.

The art isn't new in his family. His grandmother and father were excellent weavers, and his uncle was a professional. But his cooking skill is more difficult to explain. "He just took to it naturally as a youngster," his mother said, "and soon he was cooking for our family of twelve." •

He also built this 15x27-inch replica of a covered wagon, hand-carved from basswood. It is a scale-model, will adorn the Williamson mantel.

Mrs. Williamson displays one of Bob's masterpieces, above. Below he dishes up a mess of grub for his hungry work gang on the C & O train.



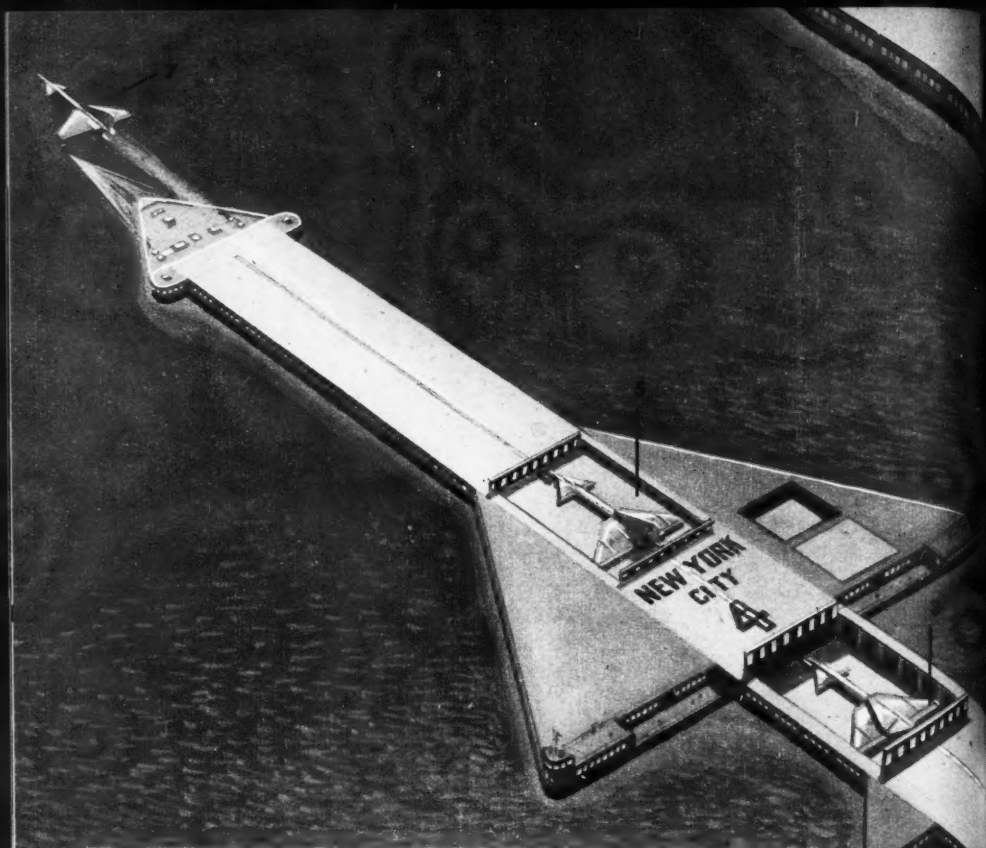
Why Don't We Build...
FLOATING AIRPORTS

Then when the inevitable crash occurs, it will be on open water and not a crowded city such as Elizabeth, N. J.

By Frank Tinsley

THE modern four-motored air transport is a flying fire bomb. It takes off with about 5,000 gallons of high test gasoline with the explosion potential of T.N.T. In 90 per cent of all crashes, this liquid dynamite either goes off with disintegrating force or is showered over a wide area in a flaming rain that sets fire to everything it touches. That this can be a deadly menace to people living around air- [*Continued on page* 68]

'52 FRANK TINSL



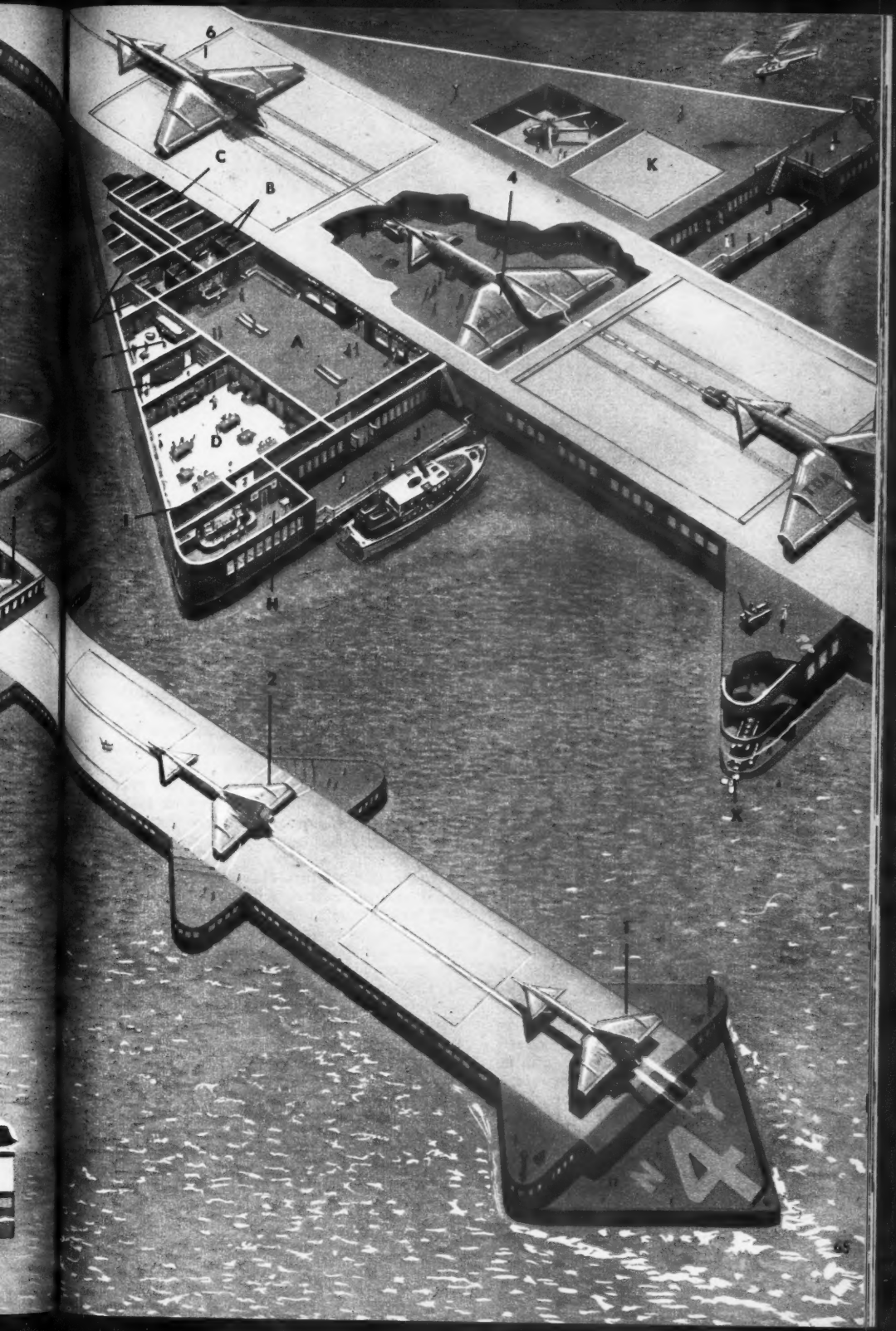
PASSENGER ACCOMMODATIONS IN CENTER ISLAND

A. Lounge	D. Restaurant	G. Storeroom	J. Boat Landings
B. Lavatories	E. Pantry	H. Bar	K. Heli-taxis
C. Dressing Rooms	F. Kitchen	I. Bar Stores	L. Waiting Room

LANDING AND TAKE-OFF SEQUENCE

1 — Plane touches down at after end of flight deck.
2 — Halted by carrier type arrestor gear, it hooks to tractor.
3 — Towed to down elevator, it descends to hangar deck.
4 — It is towed forward to depot area to discharge, pick up passengers.
5 — Reloaded plane is towed to up elevator, rises to flight deck.
6 — It is towed off elevator, hooked to catapult.
7 — Released from forward deck, it resumes flight.
x — Airport is kept constantly headed into the wind by automatically controlled water propellers.

FRANK TINSLEY '52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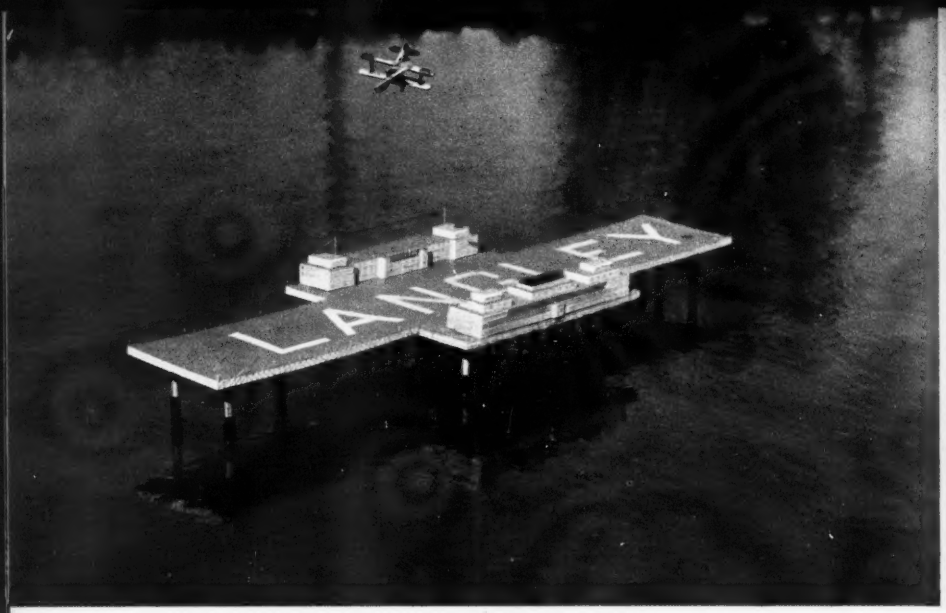


Edward Armstrong of Philadelphia designed this floating seadrome before non-stop trans-oceanic flights became possible.

ports is shown in recent statistics. The Greater New York area alone has suffered five such crack-ups in a period of four months.

Through all the loud shouting about these crashes, it is interesting to note that neither the airport critics nor the airline defenders have come up with one obvious solution. Like New York, most of our great urban centers are adjacent to or surrounded by large bodies of open water. Throughout the United States bays, sounds, lakes and rivers provide a simple and relatively inexpensive answer to the problem. Floating airstrips!

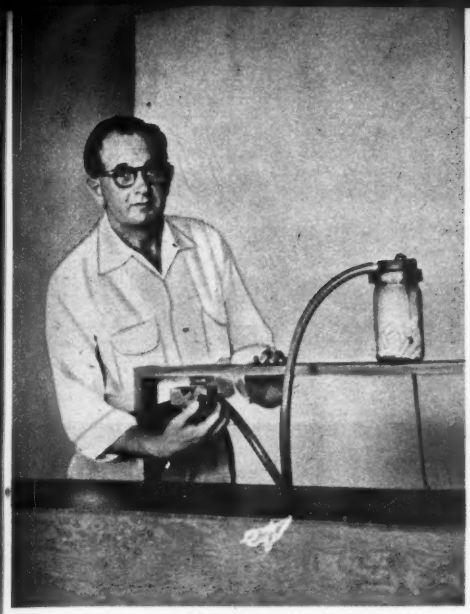
Does the idea sound ridiculous? It did when first proposed to the Allied Council prior to the Normandy invasion, but the brass was in no position to scoff at anything. Too many "screwy" ideas had already paid off. There were the British schoolboy's "degaussing cable" which countered the menace of the Nazi magnetic mine, and balloon-like rubber rafts that had saved many a pilot's bacon. Who dared to say that the notion of forming flight strips, docks and harbor facilities of interlocking, water-tight tanks might not work?

Work it did! "Operation Lily," a test seadrome 520 feet long and 60 feet wide, was given a tryout in 1945 at Lamlash, Firth of Clyde. It was formed of six-sided, steel buoyancy cans, each six feet in diameter and 30 inches deep. Naval Swordfish planes, weighing 9,000 pounds, used them without trouble. Anchored in otherwise unusable shallow water, the airstrip was kept headed into the wind by powerful motors and it was a complete success.

Now, Ronald M. Hamilton, Lily's English designer, proposes a modernization of the plan to provide safe, floating airports for American cities. M.I.'s visualization of one is shown in the accompanying illustrations. Shaped like an arrow always pointed into the wind, the strip consists of a rigid, two-story structure supported by a flotation base of individually mounted watertight tanks.

The main structure resembles an elongated aircraft carrier with an open flight deck above and an enclosed hangar deck below. In the ends of the latter are repair and storage space for planes. Each two-plane compartment is separated from the next by an elevator shaft. Workshops and service facilities are spotted in projecting arrowhead islands along the entire length of the hangar deck.

The islands also contain sub-surface engine rooms in which powerful diesels are mounted to drive water propellers. These operate automatically to keep the airstrip headed into the wind and are governed by a master wind-vane on the forward deck. The incoming plane touches down just inside the after end of the flight deck and is halted by [*Continued on page* 175]



THIS MONTH'S PRIZE

gadget

Butt-Snuffe

The inventor is shown at left with a recent model of his ashtray mounted on a test stand.

BOB GILL of Portland, Oregon, ran afoul of the law a few years ago. A cop picked him up for throwing a lighted cigarette butt out of his car window, a deed which is criminal in that forest-fire ridden state. "What do you usually do with your butts?" the cop asked. "Step on 'em," Gill replied. "Let's see you step on that last one," the cop retaliated.

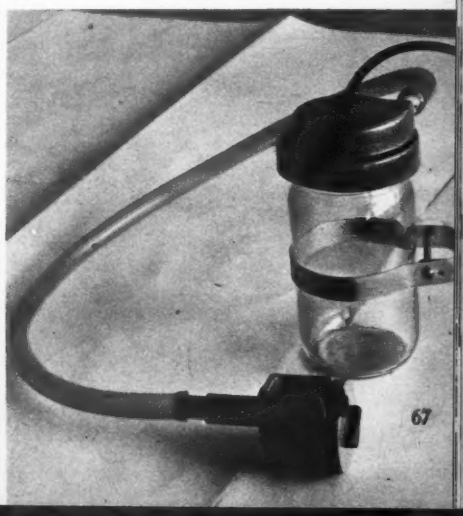
This episode gave Gill an idea. Why not make an automatic butt-snuffing ashtray? He did and it has won MI's $50 gadget award. You'll see it on the market soon, helping us to keep our forests green. •

WIN $50

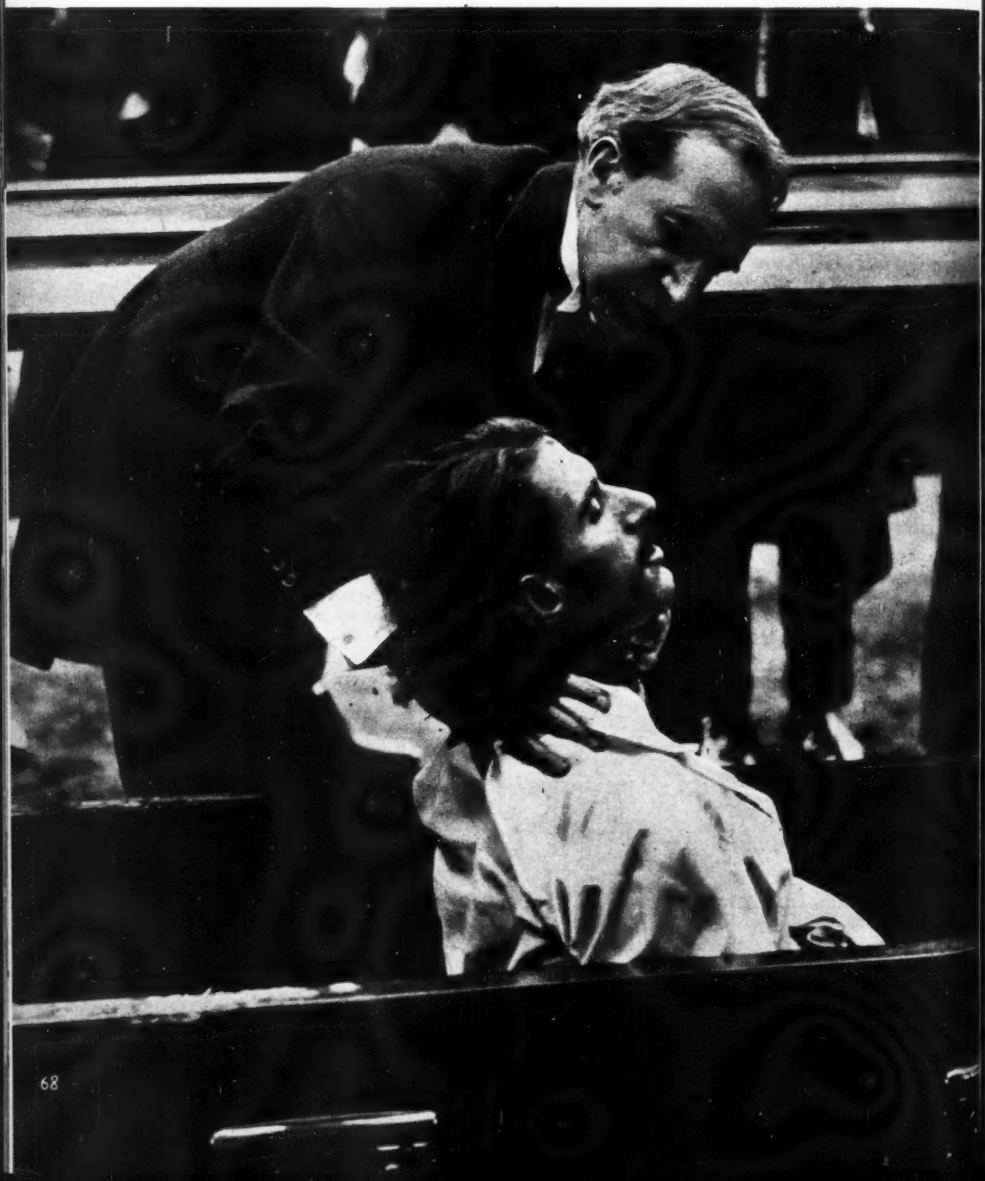
Dreamed up a neat gadget? If you're pretty keen about that pet project of yours, get busy and work it out in your shop. Then send pictures and a description of your invention to the Gadget Editor, Mechanix Illustrated, 67 West 44th Street, New York 36, N. Y. Each month the best entry gets a cash prize of $50.

The tray assembly is easily mounted below the dashboard. The cigarette is placed in it. A flick of the wrist plus vacuum does the rest.

Jar is mounted behind firewall. Small tube from cap leads to intake manifold. Manufacturer is Vaco-Tray Co., Sandy Blvd., Portland, Oregon.



They Never Come Back



. . . say the scientists who claim no one has ever returned from the spirit world. Still there are things even they can't explain . . .

By Lester David

THE tanker Watertown, owned by the Cities Service Oil Co., was chugging slowly through the blue Pacific when gas fumes from a cargo tank touched off a double tragedy and a mystery deeper than the ocean itself. Two seamen, overcome by the gas, died despite all attempts to resuscitate them and were buried at sea.

In the shadowy dusk of the following day, a choking cry pierced the stillness from amidships. A young sailor, his features paralyzed into a mask of terror, was pointing at the spot where the bodies had been consigned to the deep. There, on the catwalk, were the heads of the two dead seamen!

The crewmen rushed over and stared awe-struck. The phantom heads vanished slowly—and then reappeared. Daily throughout the long voyage the apparitions came and went, remaining visible for a few seconds at a time. On docking at New Orleans, the first mate bought a camera and stood watch. He took six pictures as the heads came into view and, on docking again, had the roll developed.

Five pictures showed nothing—nothing but the sky, water and an empty catwalk.

But on the sixth, two heads were clearly visible, the heads of the two seamen who had been buried at sea!

Can the dead return to the world of the living in some form or another? Are there really such things as ghosts? The heads on the catwalk—the white-garbed apparitions that float down the stairs of gloomy old houses—the spectres that spread mischief in their former haunts—the spirit voices and rappings that bridge the misty veil between the living and the departed—are these all just the product of fevered brains or clever fakes, or do they really exist?

Don't think that only the backward and superstitious believe in ghosts and spirit messages. Actually, a number of scientists and intellectuals of the first rank are convinced that supernatural phenomena, including ghosts, are proven facts. On the other hand, equally noted men of learning scoff.

Who is right—what are the facts? Let's clear the air of all the cobwebs, hearsay and half-digested proofs and explore the

Mystic Chandra Bey came back when he was buried in a coffin for one hour—but he hadn't died. Said it was suspended animation.

A few years ago at midnight on Hallowe'en a seance was held to contact Houdini who said he'd return if inhumanly possible. He didn't.

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Medium Horace S. Hambling of London, England, insisted the spirit of Moon Trail, a dead Indian, took control of his voice and spoke while he was in a trance. Spiritualist's words were recorded.

arguments. Here are the reasons advanced by the disbelievers to prove that there are no such things as ghosts. Ghosts, they say, can be actually pathological hallucinations, spectres that result from a variety of conditions of the brain or nerves, from disease, fever, insanity, the abuse of drugs or alcoholism. Any of these can make things appear. They cite the goblins and demons that torment dope addicts, the pink elephants and little men that plague drunks. Less well-known is the fact that certain brain lesions can beget ghosts, they point out. One form results in a tall, glowering figure that stands at the foot of a bed, balefully staring at the patient. Sir Henry Head, famed British neurologist, declared it's the only ghost that science can actually treat.

You don't have to be sick, crazy or an addict, say the anti-ghost groups, to have hallucinations. Normal persons have them, too. They ask you to think back—have you ever been engrossed in work and thought you heard someone call your name? Vivid dreams at the point of waking can also make people believe they see things that actually aren't there.

Ghosts can be illusions. An hallucination is something conjured up in the mind, while an illusion is created by an outside force. Take the case of the ghostly old lady who terrified neighbors by flitting through the rooms of an old house, moving always from front to rear. The story came to the ears of Edward Saint, the famed ghost hunter, who learned upon investigating that the old lady made her appearance only at night and just as a car was driving up. The explanation? The windows, Saint found, were of wavy glass which caught the reflections of approaching headlights and ran them from window to window all around the house in eerie fashion.

Endless hours spent by investigators for the American and British Societies for Psychical Research in tracking down so-called ghosts have revealed many of the classic spectres to be nothing more than loose roofing chattering in high winds, echoes in ancient plumbing, creaking floor boards, groaning joists and tree branches swishing against windows.

Ghosts and spirit messages can be man-made fakes. Unearthly howls, weird clanking of chains, sudden eruptions of violence in an old house have been traced to practical jokers, psychopaths or kids. The ghostly goings-on at the Wild Plum schoolhouse in North Dakota not long ago is an excellent case in point. Without apparent explanation, small fires broke out in the corners, stones and lumps of coal were tossed about, mysterious writing appeared on the slates and, to top it off, a tall, cloaked figure peered through the windows, disappearing as soon as he was spotted. It was evidently the work of poltergeists, those noisy, mischievous

Edward Thorne, left, shows Joseph Dunninger a glass-covered statue of Rameses II he used to try to contact dead Howard Thurston, magician.

Nat Liebler, left, and assistants test a device called a Metacom designed to communicate with spirits in another world.

spirits who make nuisances of themselves. Or was it?

Authorities quizzed the terrified children and soon learned the reason for the strange manifestations. The kids themselves were the culprits! They lit matches when the teacher wasn't looking, threw stones and coal, wrote on the slates. And the tall figure? Purely imaginative.

Many instances of white-clad apparitions, haunted photographs, statues that walk, ghostly voices and the like have been traced to ingenious mechanics who rigged up devices as practical jokes. As a matter of fact, there's a fellow named Robert Nelson of Columbus, Ohio, who actually manufactures ghosts to order and has built up a thriving business in haunting houses down to the last skeleton rattle and horrible scream.

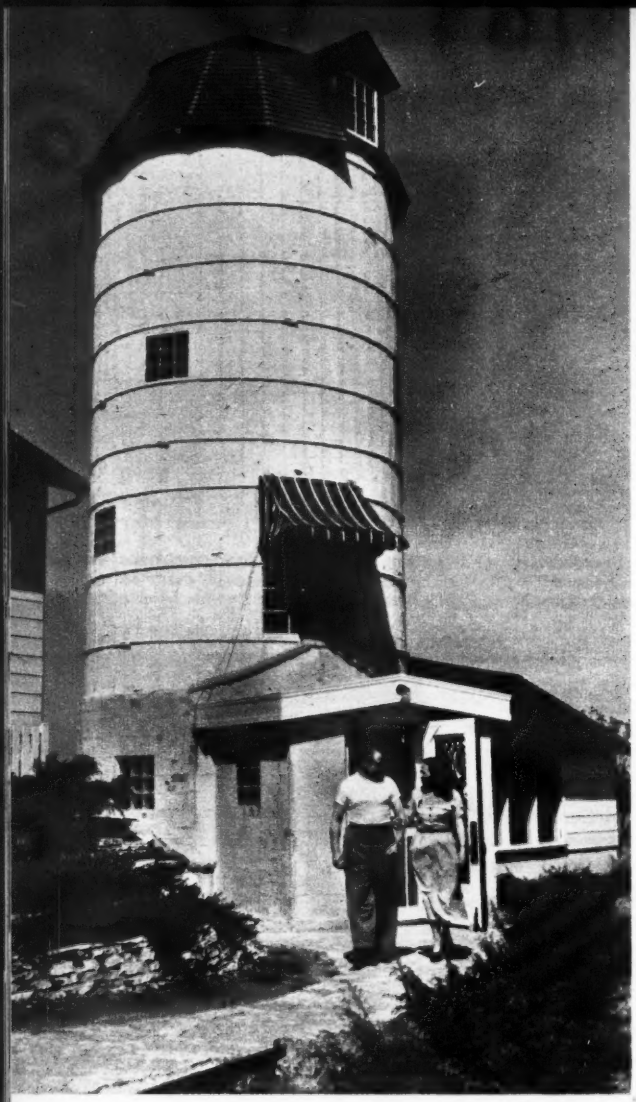
The monumental frauds of some seance artists have been exposed frequently—the invisible wires which agitate the tables, the speaking tubes extending to a far-off room where an accomplice sits and utters messages from the "dead," the hidden mechanisms which create rappings and tappings.

Not too well-known, though, are the tricks of the spirit photographers. They take pictures of you and you are stunned to see ghostly shadows in the background, or perhaps even a face peering over your shoulder. These, say the disbelievers, are the tricks. [*Continued on page* 166]

Sir Arthur Conan Doyle said he knew many spirits intimately and produced this flash photograph of a couple of them to prove it.

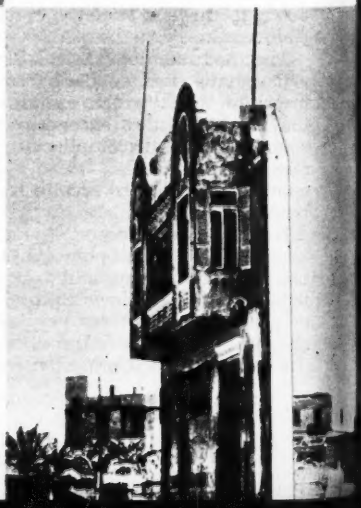
Another of Doyle's photos shows a mysterious spirit substance called ectoplasm boiling from the mouth of his medium.

Slap-Happy Homes

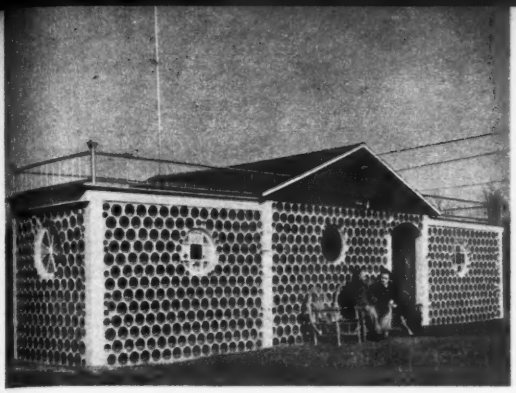


Mr. and Mrs. Lee Andre have a silo home near Palatine, Ohio. It once stored cattle fodder, now provides over 750 square feet of living area.

In Alexandria, Egypt, a landowner found his property too small so he built this house with two rooms upstairs and a regulation door, staircase.



YOU don't need a house to have a home! This is a fact which many ingenious Americans have discovered in the past few years of housing shortages, and they've come up with some of the weirdest substitutes for the conventional love nest. It seems as though just about anything can be used for a place to hang up your hat when the situation is really rough. If you're having house trouble, don't be discouraged. Maybe these pictures will suggest a solution to you. And if your unusual home costs little and keeps you warm and dry, it might not be so slap-happy after all. •

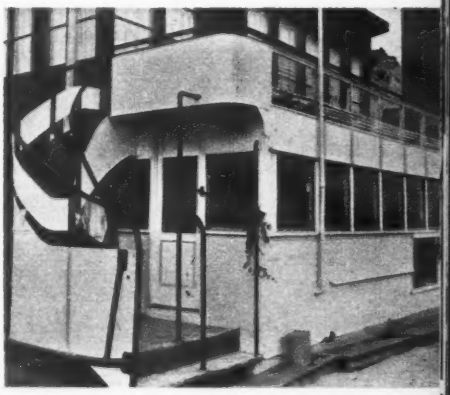


Sons of R. T. Troxler of Elon College, North Carolina, returned from service, found 3,000 bottles, built this three-room summer house.

When a Cleveland, Ohio, winery thought prohibition was here to stay 25 years ago they sold these 6,000 gallon casks, now tourist homes.

Pillboxes made of steel and cement are homes to these people in Milan, Italy. They're sturdy, built for an atomic age, say their residents.

When a transit line in Santa Monica, California, discarded an old bus it didn't dream Miss Thelma Burnette would convert it into an efficient house.

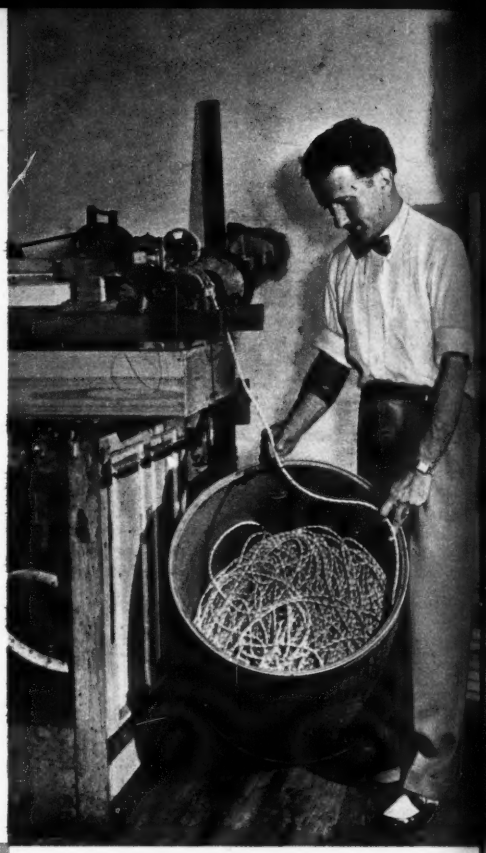


R. Guy Davis of Macon, Georgia, bought an old coach from the Central of Georgia Railroad and made it into a home with all conveniences. When he wants to move he flags a passing train, asks for a tow.

A MONEY-MAKING

idea

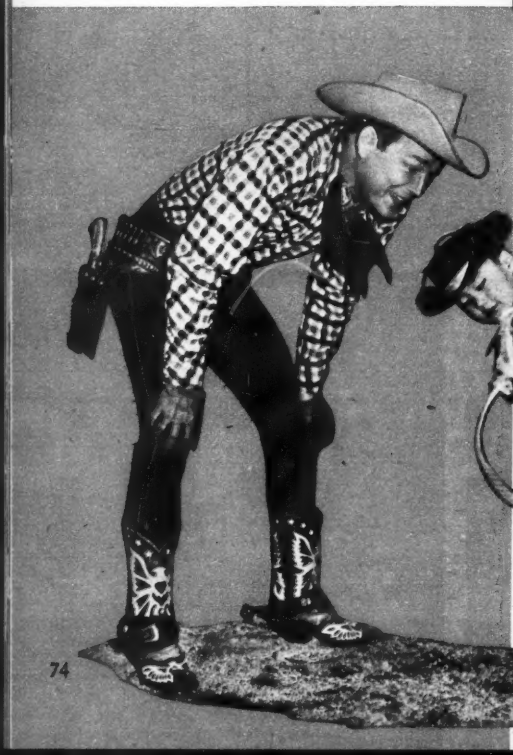
Machine, specially designed by them, coats ropes with phosphorus so they glow at night.



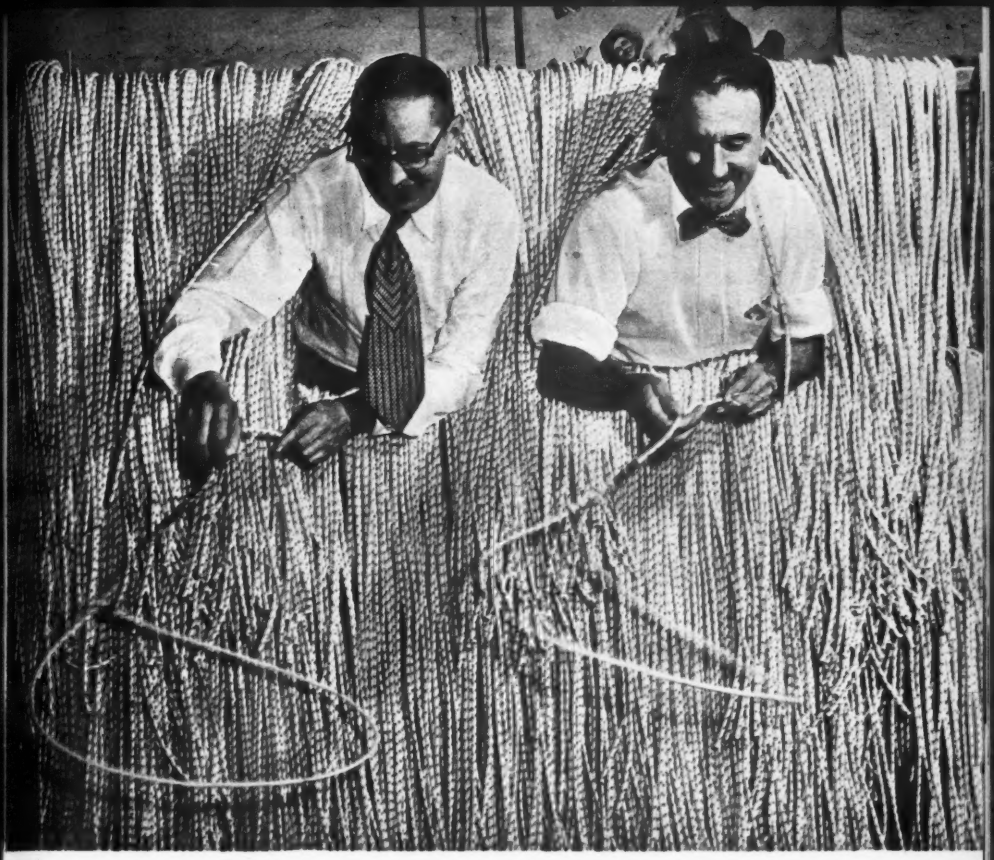
When Messrs. Knox and Reese came to the end of their rope they looked ahead and saw a quarter-million dollar annual sale for their trick lariats.

By H. W. Kellick

They



Roy Rogers, sponsor of their trick lasso, shows a young Chinese cowboy how easy it is to spin a Western loop.



Lassoed a Fortune

THERE'S an old saying, "Give a man enough rope and he'll hang himself." But when Dave Knox and Bill Reese got enough rope they didn't hang themselves; they hung onto a business idea which now grosses $235,000 a year.

There's hardly a buckaroo between the ages of five and 50 who doesn't spin a lariat turned out by the Knox-Reese Company of Philadelphia. Anyone can twirl the rope in professional style without a single lesson. It's been in the movies, on TV, in rodeos—wherever the cowboys are the big attraction. It even starred in Annie Get Your Gun on Broadway.

The whole secret lies in a simple gimmick, a trick swivel, which converts an ordinary piece of rope into a lasso.

How did all this come about? Well, back in 1945 Dave was in the Army Air Force attached to a unit making training films in Hollywood. As a director, he was always confronted with technical problems.

Of these there was one in particular that puzzled him. It seems that the script called for a scene showing how a gyrostabilizer works in helping to balance a plane in the air. All sorts of devices were suggested and tried but they failed and much film footage was wasted.

One day while watching a cowboy swing a rope in a Western movie, Dave suddenly hatched an idea. A trick roper could control his lasso while it spun in the air by

Twirling two ropes simultaneously is easy, too. Wrist motion starts them; swivel does the rest.

twisting his wrist, Dave reasoned, and this action could explain the point he was trying to make.

Expert ropers were enlisted for the experiment but none could produce the required effect clearly enough. Dave pondered for a day or so. Then he fashioned a crude swivel which he fastened to a rope. It did the trick without the wrist action.

Shortly thereafter, his life-long pal, Bill Reese, then an electrician in the Navy, came to Hollywood on a furlough. The two got together. As a gag, Dave showed his friend how he could twirl a lasso like a real cowboy.

"That's terrific," said Bill. "Where did you learn to swing a rope like that?"

Dave laughed. Then he let Bill in on the secret. He showed him the swivel.

"Something should be done with that gimmick," suggested Bill.

Together, they formulated plans to manufacture lariats for kids. They slept on the idea for a couple of days.

Then they met Roy Rogers at a Hollywood party and showed him their trick lasso. Very much impressed, the movie cowboy encouraged them to go ahead with their project and vowed that if the boys ever needed his help, he'd be ready and willing.

In 1946 when they were back home and out of service, they resumed their plan for manufacturing lariats. The Veteran's Administration certified them as being eligible for a G.I. loan. As a result, Dave and Bill called on local bankers and presented their plan. "It's a poor risk," bankers told them and refused to okay such a ridiculous enterprise. The two ex-G.I.'s were actually laughed out of the banks.

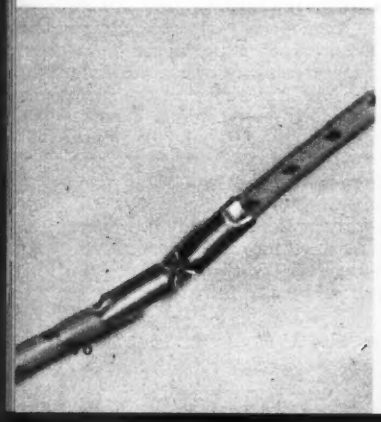
They decided to give the idea a whirl anyway. They pooled their mustering-out pay which amounted to $400. Working in Bill's Upper Darby, Pennsylvania, basement, they fashioned some hand-made swivels. Then Dave "borrowed" a clothesline from his home and with a razor blade cut the rope in ten-foot lengths. Then they attached the swivels.

Like all new enterprising business men, they lingered long on finding a name for their product. Finally, they called it "The Trick Lasso."

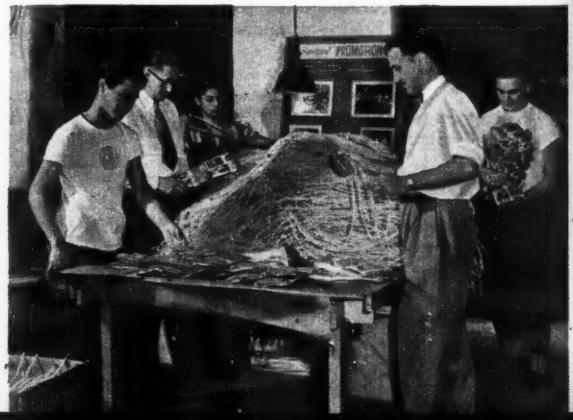
One afternoon shortly thereafter Dave demonstrated the lasso before the buyer of a sporting goods store. He was amazed. "Let me try it. I always wanted to twirl a rope like that," he confessed.

One twirl and [*Continued on page* 174]

Secret of the Knox-Reese lasso is the swivel, made similar to the common snap-bead key chain.



Each rope is packaged in a cellophane bag which carries picture of Rogers and his horse Trigger.



HOLLYWOOD'S MISSING LINK

NEED a blind date for your mother-in-law? Steve Calvert, Hollywood's gorilla man, is your answer because he's really handsome when he's all dressed up in his $1,500 hirsute suit. Actually he makes a nice living using it in horror and jungle movies. And it's a work of art. Each hair, human and yak, is sewed and tied individually. Gorilla curves are achieved by rubber padding. Hands, feet and face are molded rubber. Wires, levers and rods enable him to make his brows beetle, his lips curl, snarl and talk, and can even make his nostrils dilate when he's real mad. •

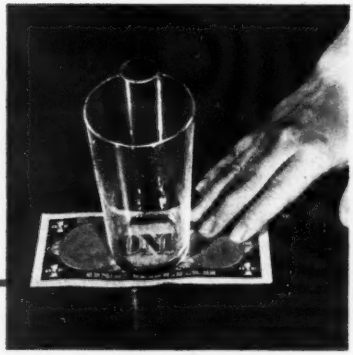
Suit is hot, but Calvert must wear long underwear for comfort. Hair is combed daily.

Imitation of a gorilla takes practice, skill and real acting, especially the simian "talk."

He has two suits; one is a blond (for female roles). The hair on his chest is his own.

Make a burning candle float upright in a glass of water? Sure, it can be done. Weight the bottom of the candle beforehand with a nail or screw and then conceal with melted wax. Plop it all into a glass of water and the balanced candle floats perfectly upright.

Remove the dollar bill from under the tumbler without disturbing the coin perched on the rim of the glass? Simple! Just wrap one end of the bill around a pencil and slowly roll it out. It'll slip from under the glass smoothly without causing coin on top to stir.



PARLOR PRESTIDIGITATION

Pass a single calling card around her head? First fold card in half lengthwise. Then make series of cuts a quarter inch apart from folded edge up to within an eighth inch from open edges. Turn card around and cut between original cuts. Open up and slip over head.

Balance a drinking tumbler atop a playing card? Here's the joker—a little piece of pasteboard bent at right angles to the card and held behind creates a tripod base for the glass. The piece can be slipped up against the card while the gullible spectators look elsewhere.

Can you defy gravity by holding the knife without gripping it? As your lower hand squeezes the wrist of the other, the upper fingers open and the knife remains miraculously suspended—that is if you have your forefinger pressed against it from behind.

Slice an unscathed apple and find a penny inside? Well, on the unseen side of the blade a penny is fastened with beeswax. Wedge open the apple with the forepart of the blade and then wipe off the coin so it sticks to the inside of the apple after you've penetrated it.

If you've always had a secret urge to be a houseparty Houdini, here are some simple tricks to try on the unsuspecting guests.

Can you make five or more boxes of matches perch one atop the other with such security that you can tilt the entire batch without spilling? It's a cinch if you extend the inner casing of each box into the outer casing of the next one, giving the whole column of boxes a stiff bracing.

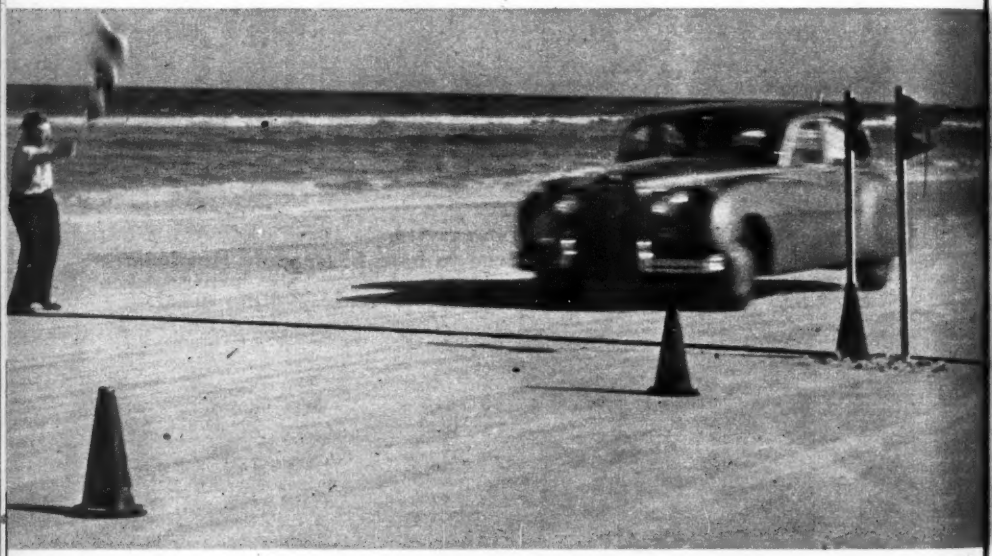
Make an egg stand on end without injuring the shell? All you have to do is put a little mound of salt under the table cloth before your victims come into the room. This makes a soft bed for the egg on which it can easily be made to stand when suckers are watching.

CARvalcade of 1952

MI's test-driver surveys the year now ending and comes up with some surprising observations on what the auto boys did both here and abroad.

By Tom McCahill

Uncle Tom himself pulled off one of the top driving feats of the year by winning NASCAR's open-class stock sedan title in his Jag.



TIRED old 1952 will go down in automotive history as the year they finally buried the horse. Detroit, aroused from its slumber by the sound of its own dragging feet, started fighting back at the impudent, increasing popularity of sports cars.

Buick and Packard tossed wire wheels and a couple of old cow hides around some pretty standard-looking balloon convertibles and laughingly dubbed them sports cars. Chrysler with its K-310 Ghia-bodied barge made similar noises. GM was in there with the old Le Sabre and a new super-Buick version of an inter-space scooter, just to show how easy it was to waste the stockholders' dough. In the words of Herman Shakespeare (Bill's kid brother), "Slush a do about nothing."

Down in Toledo, the new wingless Aero Wing Willys was born and, as yet, it hasn't caused the Chevvy, Plymouth and Ford boys to run for the storm cellars. Lincoln introduced the only all new, old line car which turned out to be one of the best-handling Detroit products of the post-war era. Your Uncle Tom got himself on Lincoln's public enemy list by saying their new glamor barge was underpowered and too lukewarm in performance to give its immediate competitors, Cadillac and the Chrysler Imperial, too much to worry about. We also stated in the February '52

Among the old-line makers, Lincoln produced the only all-new car in 1952 but Tom found the big, handsome job a bit underpowered.

issue that we expected before the year was out we would be able to report Lincoln would give its new car a shot of wildcat hormones and join the big boys. Well, here it is. Though this is not official and we haven't tested the 1953 models, we understand from several reliable sources that the new Lincolns, reworked as predicted, are now the hottest thing since grandma coughed and swallowed her cigar. If early reports are correct, the new Lincolns should give the Caddies and Chryslers a hard time during speed week at Daytona Beach.

In 1952 we saw the V8 trend still growing and the reintroduction of vacuum brakes by Packard. Real air-cooling air-conditioning for cars became a reality (with a fabulous price tag) and whitewall tires were no longer considered illegal. Kaiser-Frazer announced that they were building 1,000 plastic-body Henry J sports cars and Switzerland barred cars equipped with our highly over-touted seal beams as not having enough moxie to be safe (in my book they were so right).

Power steering, introduced on passenger cars by Chrysler in '51, was one of the big Detroit topics of 1952. The GM version, unlike the Chrysler unit, is more of an assist gimmick that only acts when a wheel resistance of over four pounds is met. These gizmos cost a shoe box full of dough and are another gadget that could get out of order or require long servicing. I for one feel that if they didn't build cars all out of balance in the first place there would be very little need for power steering. On badly balanced cars, with 60 per cent or more of the weight on the front wheels plus mush suspension and ridiculously unstable doughnut balloon tires, power steering will help in mastering these engineering monstrosities.

This brings us right bang up against the 1952 "safety" councils. It has been proven to this writer's satisfaction that there isn't a guy connected with highway safety with

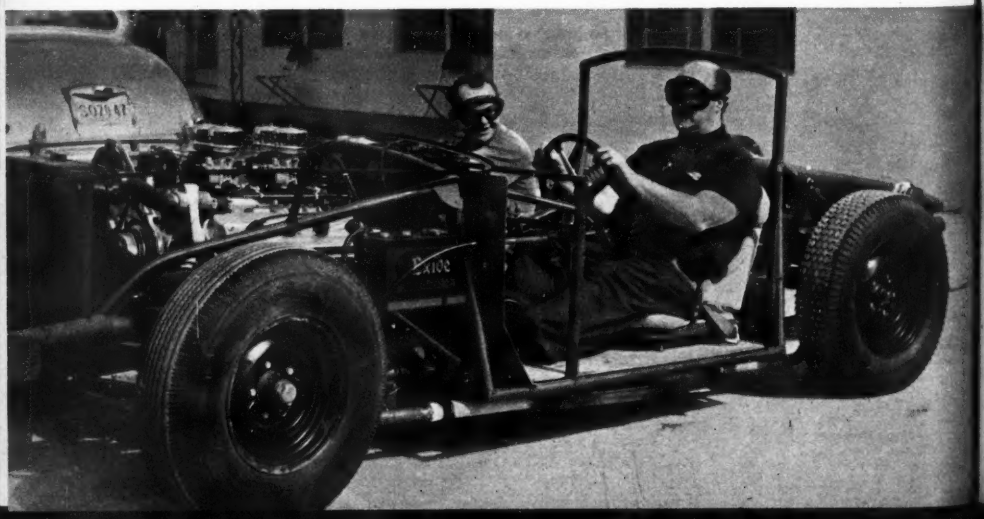
Surprise of the year was the French Gordini, a tiny 1½-litre car which our expert nominates as "the greatest automobile of 1952."

This year saw the introduction of the heralded Ford overhead-valve six, which promptly won the drag-race championship of the low-priced field.

Many a stock car race driver didn't get much more of a view of the Hudson Hornet than this one. Hudson, rated by Tom as one of our safest cars, was 1952's top winner in stock racing.

enough guts to tell the manufacturers they must build safe, controllable chassis before going on with the current horsepower and more speed spree. Recently I tested a 1953 model that did better than an honest 100 mph but, even at 60 mph, it was one of the most dangerous handling cars I have ever driven. It was out of balance, mushed and squealed at the slightest turn and all in all was as lethal, in my opinion, as a bottle of nitroglycerin in the glove compartment. What can we do about these unsafe cars? Well, here's something each state could do and I think it would get results.

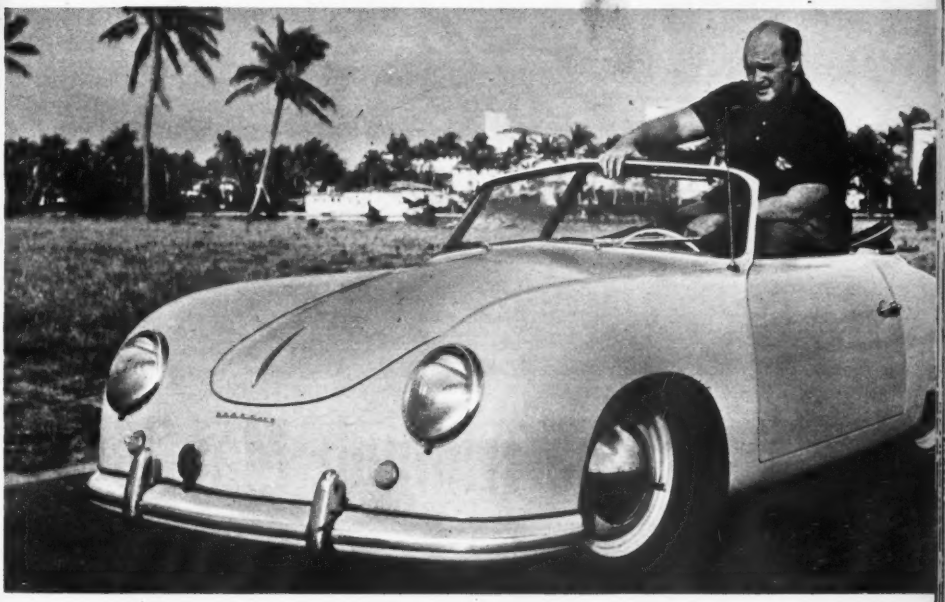
Uncle Tom was in on the new Cunninghams from the very beginning and tried out the coupe, below, even before its streamlined body was installed.



Tabulate all serious accidents on the basis of the make of the cars involved. In this tabulation, specify the type of transmission, the type of steering and, most important, how much air was in the tires at the time of the accident. Then publish the facts for Joe Public to read. If this were done and such-and-such a car proved to be tops in the murder patrol, manufacturing safety changes would be made overnight. The tabulation would have to be done on a percentage basis, naturally, because there are many more Fords and Chevvies on the road and, under normal circumstances, their chances of being involved in a hassle would therefore be much greater. Such a tabulation, fairly and honestly prepared and widely publicized, would bring results, believe me, Buster.

The writer rates Hudson and Lincoln as the safest big cars on the road. I believe all three of the top-bracket Big Three are safer than most of the medium-priced cars—one of which, on the basis of actual tests, I rate as a real man-killer, with two others close behind. Without getting myself tangled up in a law suit that few courts would dare decide in my favor, I invite you safety boys to take the ball from here and help stop some of this ridiculous killing in 1953. As this year draws to a close the death rate is still on the roll. Our American engines are the most reliable in the world but too many are set into coffins which can hardly be steered and often have no traction at all.

In 1952 the steel strike and the Korean war again were used by some manufacturers as an excuse to keep plugging the old models. Styling in Detroit gained little as a whole except in the case of Lincoln and the Willys, which were neat-looking additions. Nash came out with Pinin Farina's version of the Ambassador. Though the best looking Nash in the company's history, it had some of the purists wondering just how much Pinin should be blamed for it. Chrysler saved its big guns for a year-end wind-up with the new V8 Dodge and the multi-horse Chrysler V8 which we haven't seen as this article is wrapped up. The new V8 Buick Roadmaster, boasting 188 horsepower and simulated wire wheels, will also be out right after we shift calendars and we will have a test report on this rig in the February issue of 1953. The overhead-valve Ford Six I first drove over three years ago finally made a very snappy debut in 1952 and became the drag race champ of the low-priced field. This past year, I am sorry to report, Mr. [*Continued on page* 169]



The 1½-litre German Porsche, with an air-cooled rear engine, was one of the fastest small cars to come from abroad during the year. Trouble is, this convertible retails in the U. S. for a hefty $4,500.

Uncle Tom and his ever-critical Joe cast an appraising eye over the Mayflower and discover it has some very remarkable virtues.

MI Tests the Triumph Mayflower

Apart from the knife-edge styling, which may or may not send you, best feature of this car is its price.

By Tom McCahill

THE Triumph Mayflower, an ounce-size English bucket, looks more than a little like the Mayflower that brought one million three hundred and forty-seven thousand immigrants to the shores of Massachusetts back in 1620. (In New York City alone, if any politician could collar all the votes of people claiming to be direct descendants of the guys and dolls who assaulted Plymouth Rock on that cold December day over 300 years ago, he could swing any election in a landslide.)

But let's get back on course. The Triumph Mayflower, an automobile that has more acute angles than you can find in the uplift ads, is the only car in the world selling for less than ten grand that follows the knife-edge school of design. Until the Mayflower came along (the car, not the boat), knife-edge finish was more or less a Rolls-Royce or Bentley exclusive. It was usually found on the more ultra-ultra formal rigs of state used by the toffs for Coronation parades, the opening of Parliament or going to the opera. The Triumph Mayflower is to me a baby town car. It is a design most people either hate on sight or warm up to gradually. It is about as

sporty as shooting parrots in a cage and as streamlined as King Farouk doing a one-and-a-half off a ten-foot springboard.

When Joe Ferguson of Fergus Motors, the American distributors, asked me if I would like to test one, I told him, "Okay, Joe, but I want you to know I think it's a hell of a looking car and if it's half as bad as I think it looks I'm going to blast it wide open." Joe said he thought I would like it if I gave the car a chance so he and Jim McMichael brought one out to my house for testing.

This car, with a 1¼-litre engine (same size as the TD MG), is only 154 inches long overall and 62 inches wide. This makes it a lead-pipe cinch for handling in heavy traffic and for parking. It is 62 inches in height, which insures those on the driver's seat plenty of head room, but in the back seat I found the head room limited. My first impression when I got behind the wheel was amazement at its big car roominess in the front seat and its real chair-height comfort. In this respect it reminded me of our own Chryslers of late years. It has a steering-column shift and a three-speed transmission, unlike the typical British four-speed box.

I had hardly left my own driveway before I realized that I was tooling an exceptionally fine handling car. The steering was light and sure and the first run through my standard test curve was an eye-opener. At 50 miles an hour through this bend that would send some Detroit barges into the woods, this jigger-size, slab-sided tobacco can held on like a tar stain on a white shirt. Its cornering ability was not full sports car stuff, such as you get from an MG, but considering this car's height, shape and weight it was as solid as a 16-pound shot landing on your head. The more I drove the Mayflower the more I liked it. But the big pay-off came in the hill climb test.

With myself and Joe and 500 pounds extra added weight, it took my long 28 percent-grade hill climb without the slightest sign of distress. Naturally this was done in low gear but at the steepest point I stopped the car dead and then started off again without a single buck. With one average-size driver alone in the car, the Mayflower would be a real threat on Switzerland's Matterhorn. Considering its size and the fact that four people, all scaling better than 200 pounds, can go for a trip in this barge, the Mayflower is quite a mighty little atom.

On the highway this car, though no bolt of lightning in breaking from a light, nevertheless can whip up to 30 miles an hour from a standstill in 7.7 seconds and get to 60 in 26.33 seconds. Somewhere between 65 and 70 the cork gets pulled all

Boxy design of the top gives exceptionally good head room for a small car. Sharp lines are like those of Rolls-Royce, Bentley.

One unusual wrinkle is the locking handle for the hood, which lifts up as shown at the right.

Fully-adjustable, chair-height front seat makes for very comfortable riding, our expert learned.

the way out of the bottle and that's that.

When I got this pickle jar back to the house and started taking pictures I realized that, like a teen age kid's beard, it was slow in growing but nevertheless this car was growing on me. Even the knife-edge body treatment got less hard to take and the fact that it was so entirely different from all competitive rigs gave the Mayflower a bit of distinction. So would rubber boots on a ballet dancer, I know, but on the Mayflower this slightly stuffy look, at first glance silly, soon gave it a sort of an aloof Colony Club appearance.

Now, the point where I switched from laughing at this turnip to taking it seriously was when I asked Joe what it cost delivered in New York City. He told me that $1,685 is all the loot you have to raise to own one of these book ends. In my book that's the big feature. If this little geranium pot cost a thousand dollars more I would still be laughing every time I saw one and would recommend it only to advertising executives and my worst enemies. At $1,685 this job has a lot to offer. As already stated, its ease of handling in hard traffic is a feature in itself for suburban or city travel. As a second car for going to the station or taking up to three kids to school, it would be hard to beat.

The Mayflower is well built and the upholstery and general finish are tops for a car in this price class. Even your grandmother, Hot Pill Nellie, wouldn't look at all out of place rolling up to the Woman's Club with Jake the Chauffeur on the box. In all, the Triumph Mayflower is a 30-cent aristocrat with a rare port and custom cigar look. I can't see Bulldog Drummond stepping out of one of these but I can picture Pierpont Nickelnose, the slick city banker, arriving in one for a board meeting.

The four-cylinder, 1¼-litre engine develops 38 horsepower and the entire car, unloaded, weighs just over 2,000 pounds. The three-speed steering-wheel shift will not appeal to the sports car group but it has a lot of advantages in traffic. It is easy to change gears and you can leave it in second, mile after mile, without any blow-up effects. The average woman driver will find this far easier for shopping trips than the floor shift, four-speed box. For those who live in big cities and make occasional trips to the country on weekends, the Mayflower would be hard to top. In fact, it makes a whale of a lot more sense than owning a big Detroit balloon. You can store it in most garages for less, it gets 35 miles on a gallon of gas and, what's more important, it will look just as funny or just as good (depending on your esthetic viewpoint) five years from now as it does today. This means if it does the job you want, it won't go out of date like its high style American contemporaries. If this happens to be your type of rig, old boy, I recommend that you grab your bowler and go to your nearest dealer for a closer look. As the Marlboro cigarette people say, "If you want to escape from the commonplace" the doors are open with that $1,685 price. ●

Developing only 38 horsepower, the four-cylinder engine pushes the 2,000-pound car at 70 mph top.

SPECIFICATIONS

MODEL TESTED:

1953 Triumph Mayflower two-door sedan

ENGINE:

4 cylinder, bore 2.48 inches, stroke 3.94 inches; piston displacement 76 cubic inches; road clearance 7 inches; brake horsepower 38 @ 4200 rpm; compression ratio 6.8 to 1

DIMENSIONS:

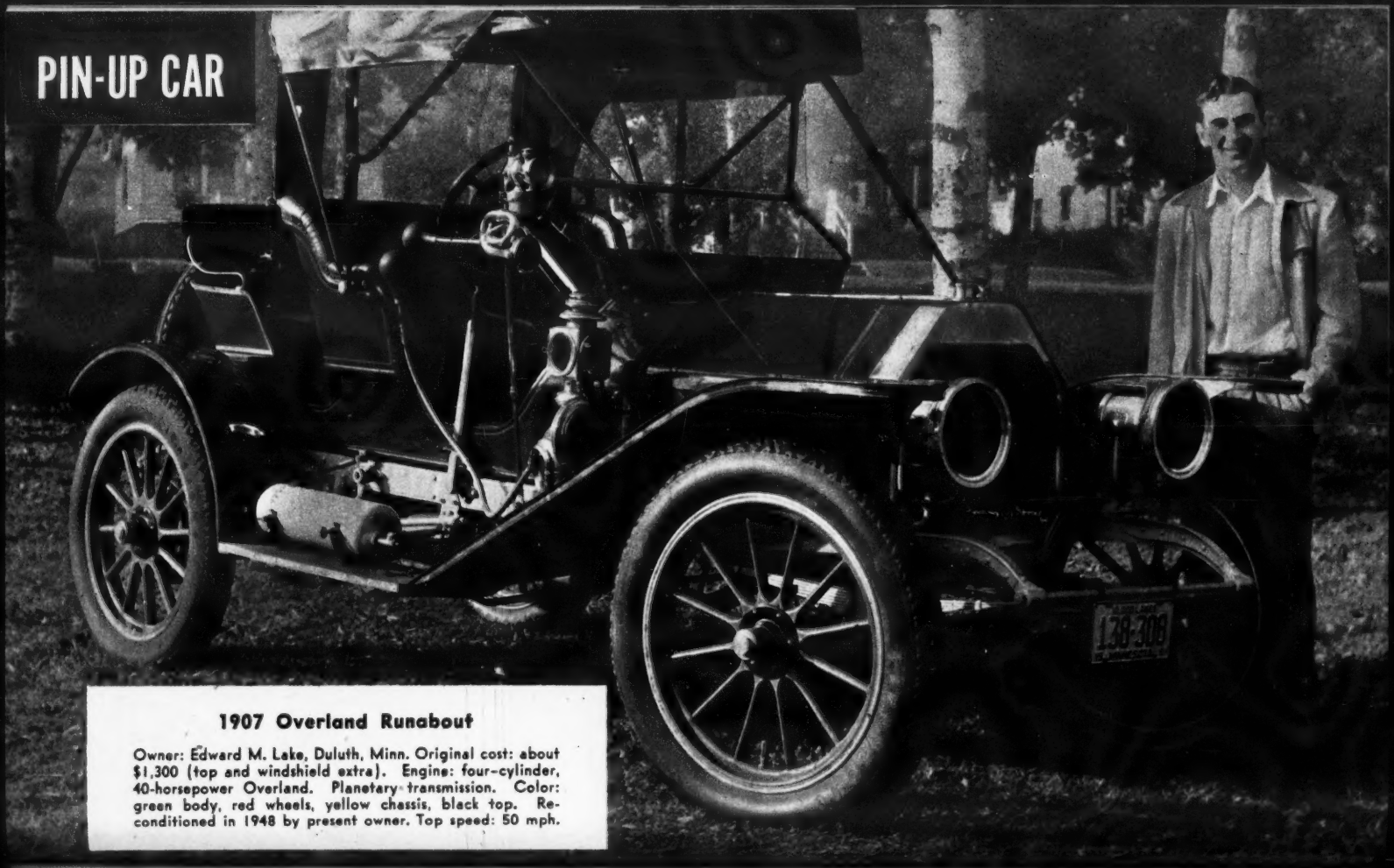
Wheelbase 84 inches; overall length 154 inches; width 62 inches; height 62 inches; weight 1,960 pounds; standard tire size 5.50x15; gas tank 10 gals

PERFORMANCE:

0 to 30 mph, 7.7 seconds
0 to 60 mph, 26.33 seconds
Top speed, 65-70 mph

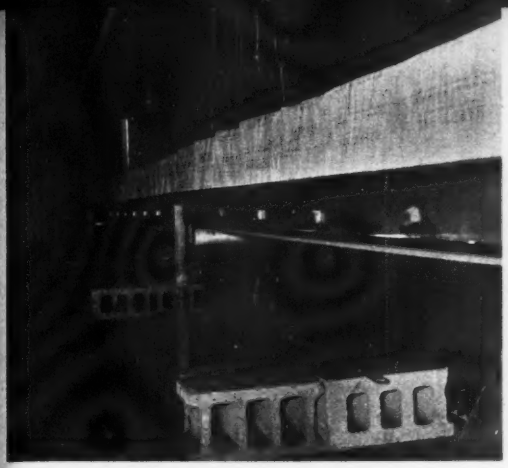
Uncle Tom was pleasantly surprised to find the little car could negotiate the "McCahill Test Hill" in low with a full load without bucking.

PIN-UP CAR



1907 Overland Runabout

Owner: Edward M. Lake, Duluth, Minn. Original cost: about $1,300 (top and windshield extra). Engine: four-cylinder, 40-horsepower Overland. Planetary transmission. Color: green body, red wheels, yellow chassis, black top. Reconditioned in 1948 by present owner. Top speed: 50 mph.



Slot-Machine Coal

THE Moelder Coal Co. of Cincinnati, Ohio, uses this unique method of vending its product. A customer puts 50 cents in the slot and gets five ten-pound packages. The conveyor belt is 50 feet long, was built at a cost of $750. Has it been successful? Last winter it delivered 20,000 packages a month. •

WIN $25

Send in a sharp, glossy photo of a snazzy car, old-timer or new, posed as at left with owner or a pretty gal. Include self-addressed, stamped envelope (just in case) and all vital statistics about car and owner. Mail to Pin-Up Editor, MECHANIX ILLUSTRATED, 67 West 44 Street, New York 36, N. Y.

Hot-Foot Christmas Tree

MISS Corenne Placek of Los Angeles celebrates Christmas with this unusual "tree." The heat from 36 candles causes rising air currents which strike the fan on top making it revolve. This turns a shaft with disks from which hang brightly colored ornaments. •

green body, red wheels, yellow chassis, black top. Reconditioned in 1948 by present owner. Top speed: 50 mph.

Roy Weatherby in his sumptuous office at 2781 Firestone Boulevard, South Gate, Cal.

High-Velocity Weatherby

He had a theory that a small, fast-moving bullet could pack more power than a big, slow slug. He tested it and now he's in business.

By Art Henry

ONE day a few years ago Roy Weatherby, California gun maker, and his guide were hunting along the Salmon River in the Yukon. They looked across a clearing in the dense forest and saw something move. The guide thought it might be a moose and Weatherby immediately brought up his binoculars for a look. It was and he reached for his gun. The guide, however, advised him not to shoot.

"Him too far away. We find close one," he said.

But the hunter decided he'd take a chance. His gun was a .270 Weatherby Magnum, one he had designed himself, and it was sighted for 300 yards. He estimated the distance to be about 600 yards. He dropped to the bank, made a fast calcula-

Weatherby inspects a seven-inch branch of a eucalyptus tree splintered by a 150-grain soft-point bullet in .300 Weatherby Magnum caliber.

At the end of his production line beautiful custom-made rifles with chrome-lined barrels and stocks of rare wood await the customer.

The bigger they are, the harder they fall for his high-velocity. This 5-ton elephant fell for a 220-grain bullet in .330 Weatherby Magnum.

tion for bullet trajectory and squeezed the trigger. The moose fell and a short time later when they reached the animal, they found it had been killed instantly.

When Weatherby turned to his guide to comment on the shot, he noticed the Indian's copper color had turned several shades lighter. His eyes were riveted on the rifle. He muttered, "Most terrible gun I ever saw!"

If not the most terrible, certainly it was one of the most powerful ever made and the reason is no secret. Now it is known to big-game hunters the world over.

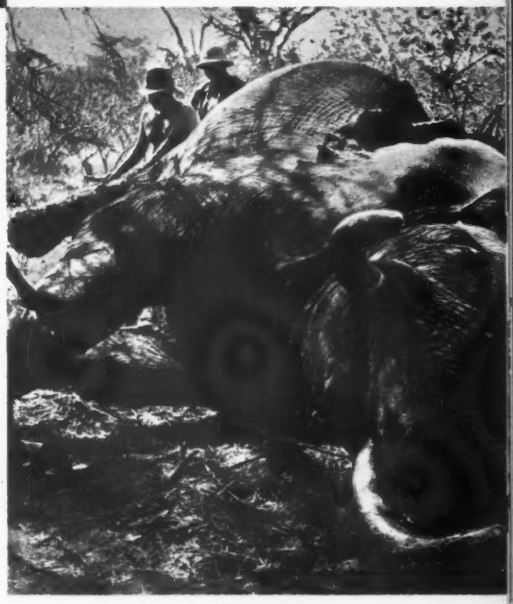
Roy Weatherby had an idea about rifles. About seven years ago in a garage in South Gate, California, he started making test models. His idea worked. Today his products are in demand throughout the world. He owns a $200,000 combination sporting goods store and modern machine shop where 60 craftsmen are employed in making the Weatherby rifle, in converting other makes to his design and to fashioning beautiful gun stocks of black walnut, maple, myrtle and California mesquite.

Weatherby's rifles may be purchased in any caliber from .220 to .375. Many of his deluxe rifles have stocks inlaid with rubies and diamonds. A few of them are trimmed with gold and silver.

His customers are Maharajas, movie stars such as Gary Cooper and Burt Lancaster, and radio and TV personalities like Arthur Godfrey and Ken Miles. But hundreds of ordinary sportsmen also have Weatherby custom-built guns in their collections.

The reason for the Weatherby rifle's power is simple enough. It is the extremely high-velocity bullet. High velocity means flatter trajectory, increased accuracy and greater wallop.

Whereas most standard rifles depend on a large bullet travelling relatively slowly to kill a huge animal such as an elephant, the Weatherby uses a smaller bullet travelling at a far greater speed. This little bullet disintegrates when it contacts the animal and its effect is equivalent to an exploding shell.



At top is a night view of his store in South Gate which attracts sportsmen from all over the world. Above is an ornate stock of California mesquite; note the recoil pad. At right is a comparison of the standard small .257 Roberts and .257 Weatherby Magnum.

In order to get this high-velocity, Weatherby cartridges are larger than the standard so they can hold more powder. Then too the inside of his rifle barrels are chromium plated to resist the tremendous power as the bullets rip through them. And one thing more. Each stock is equipped with a recoil pad to ease the severe kick against the hunter's shoulder.

Weatherby's love for rifles began almost as soon as he was old enough to handle them. His first, a Daisy BB gun, was earned by selling garden seeds and he spent his spare time under cottonwood trees shooting bluejays. His dislike for these birds arose from the fact that he had frequently seen them destroy nests of other birds.

When he was 11 years old he bought a .22 rifle and hunted jackrabbits and crows. At the time, crow heads and rabbit ears brought a ten-cent bounty. From heads, ears and scalps from gophers which he trapped after school, he earned his spending money.

In 1926 his family moved to Florida where he spent a good deal of time canoe paddling through the Everglades shooting alligators and water moccasins. At that time alligators were not protected and there was no limit on how many one could shoot. He sold the 'gators and snakes to a tannery for a sizable profit.

During the depression years of 1929-30, Weatherby became a jack-of-all-trades and eked out a living selling everything from refrigerators to can openers. He became interested in ballistics and read and studied books on the subject. It became his hobby. He bought handloading tools, powder, bullets and primers and started loading his own. He built reamers and chambered and rifled barrels for what he thought would be the perfect cartridge.

In 1940 the Weatherby Magnum was well on its way. He proved to himself his theory of velocity—that if he could get a projectile traveling fast enough it would disintegrate inside the animal's body and result in instant death, regardless of what part of the body it hit.

Needless to say, Weatherby's theory became a hot potato. Most experts stood firm in their opinion that it took a heavy, big-bore bullet to do the killing. Weatherby stood almost alone with his high-velocity theories.

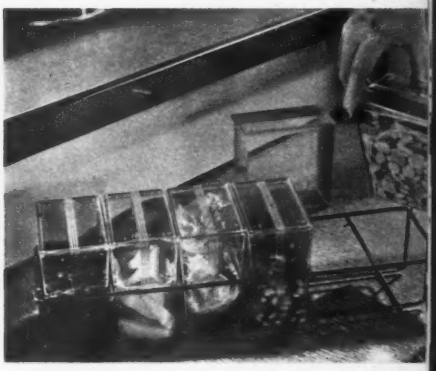
In 1945, when Weatherby returned from the Army where he served in Ordnance, he published an article based on rifles he had built and his experience with high velocity. More than 500 letters resulted from the publication. The writers were in agreement with him. In fact, many wanted rifles such as he had described.

Weatherby reasoned that here must be a career. He decided then to pursue his lifelong desire. He re-read the batch of fan letters and answered each letter personally, saying he'd be glad to make a rifle to order for the writer. [*Continued on page* 172]

NEW for CHRISTMAS

FOR THE HOME

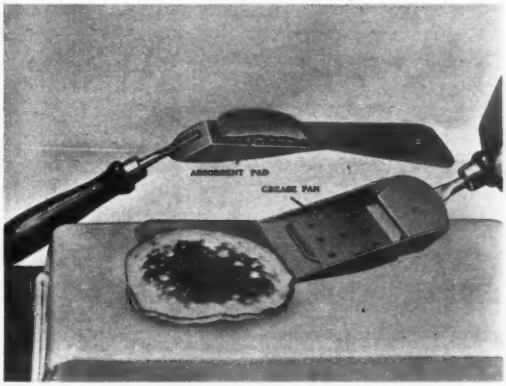
PLASTIC SHADES of Vinylite adhere directly to glass without adhesive, can be peeled off easily. Transeal, North Ave., Plainfield, N. J.



REFRIGARRANGERS are light, durable easy-to clean containers of Bakelite styrene for leftove foods. Valley Forge Creations, Malvern, Pa

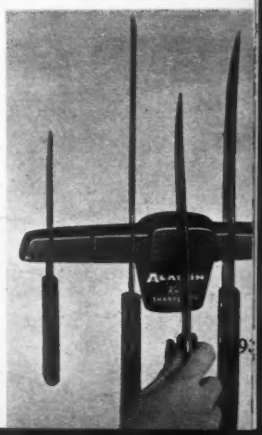
PANCAKE TURNER-GREASER carries a replaceable absorbent pad to grease the pan. Without pad, holes drain grease. Paul Laux, Shavertown, Pa.

STORM WINDOWS of plastic can be used o homes, farmbuildings, withstand all weather. Easy to install. Central States Bag Co., St. Louis, Mo



AUTOMATIC PERCOLATOR perks your coffee, keeps it hot. Made of aluminum, it has measure markings up to eight cups. Buckeye Aluminum, Wooster, O.

KNIFE RACK has sharpening slot in center, holds six knives by concealed jaws which can't damage edges. New England Carbide Co., Cambridge, Mass.



FOR THE CAR

NYLON CAR COVER in forest green weighs only 5½ pounds, is mildewproof, withstands all weather. Edge is elastic. American Agency, Broadway, N. Y.

AUTOMATIC LIGHT DIMMER for Oldsmobile is called Autronic Eye, mounts behind windshield as shown and lowers lights when a car approaches.

WINDSHIELD PROTECTOR of polyethylene plastic protects parked car against sleet and snow. Central States Bag and Paper Co., St. Louis, Mo.

SQUEEZE BOTTLE-FILTER converts ordinary water into chemically pure, soft water for batteries, irons. Crystal Research Labs., Hartford, Conn.

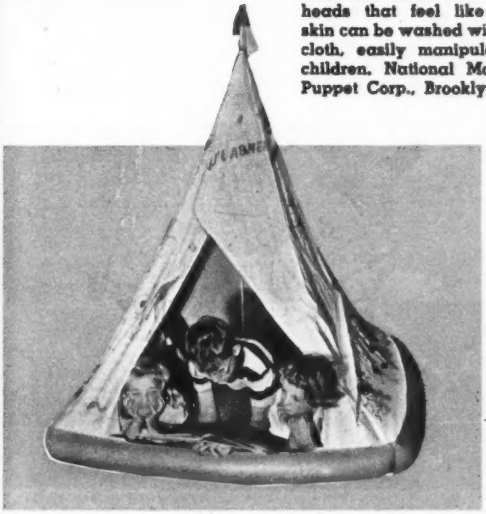
CAR CHAIR has adjustable head and arm rests, folds for carrying in small zipper case. Weight is 6½ pounds. Kelley Chair, Louisville, Ky.

INSUL-8-TOR blanket cements to car hood, muffles noises, protects paint. Ricar Corp., 180th St., N. Y. C.

FOR THE KIDDIES

MARIONETTES with Vinylite heads that feel like human skin can be washed with damp cloth, easily manipulated by children. National Mask and Puppet Corp., Brooklyn, N. Y.

JET ZOOM for rocket-travelling small fry is made of plastic, shoots pine-foot paper spiral with repeating action. Spirals are replaceable when worn. Tigrett Enterprises, Chicago, Ill.



PLAY TENT of Vinylite has inflatable base, stands 5 feet high, weighs 4 pounds, folds into small package. Bilnor Corp., Maspeth, L. I.

MAGNETIC ROADWAY enables child to steer tiny car through tunnels, past houses. German Inventions-Novelties, POB 384, Grand Central, N. Y. C.

BACKFIRING FORD, antique model, has caps inserted in bottom which explode when trigger is pulled; can be used as pull-toy. Replica of Model T. Precision Specialties, Los Angeles, Cal.

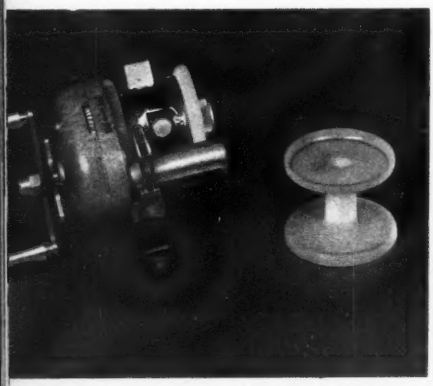
BLOW ORGAN of Bakelite operates on lung power, produces notes that sound like the real thing. It has 14 keys, weighs about 8 ounces. Magnus Harmonica Corp., Newark, N. J.

FOR THE SPORTSMAN

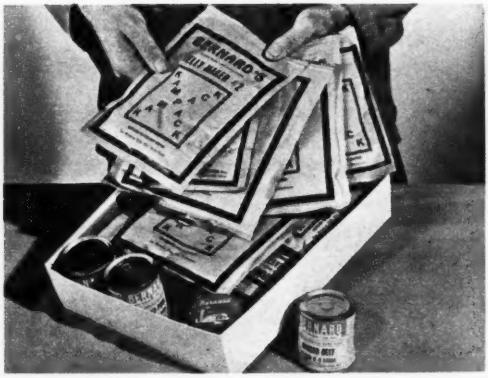
AUTO-LIFT HOOD on Evinrude's new 15-hp Super Fastwin lifts for easy engine servicing when two clasps are opened. Evinrude, Milwaukee, Wis.

WARMUFF for outdoorsmen straps around your waist to keep hands warm. Supplied with heating unit. Pacific Products, 10th Ave., Portland, Ore.

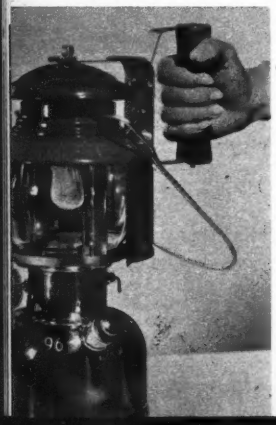
NYLON SPOOL for Neo-Caster reel weighs one-third ounce, eliminates spool inertia and backlash. Kilian Tackle Co., Baldwinsville, N. Y.



KAMP-PACK waterproof kit contains 17 items, three complete meals for four people. Only water is added. Bernard Food Industries, Chicago, Ill.



FLOODLIGHT LANTERN burns gasoline, has detachable handle reflector. Coleman, Wichita, Kan.



TUNABLE DUCK CALL named Mutone gives different tones by simple adjustment. No moisture effects. Rene-Craft Products, Wilmette, Ill.

HERE IS

MI's 2d OLD AUTOMOBILE Contest

FIRST PRIZE:
'53 DODGE Meadowbrook
Club Coupe

SECOND PRIZE: $200.00

THIRD PRIZE: $100.00

FOURTH PRIZE: $50.00

FIFTH PRIZE: $25.00

SIXTH PRIZE: $25.00

RULES

1. On the following two pages are photographs, numbered 1 through 12, of a dozen old-time American automobiles. Beside each number are three names, one of which is the correct name of the car pictured directly below. Your task is to identify each automobile by its correct name.

2. Study the pictures. Then, on the Official Entry Blank on page 99, draw a circle around the name which you believe is the correct one for each of the twelve correspondingly-numbered photographs. Circle one, and only one, name after each number. Next, in the spaces provided, print your name and address.

3. Now, on one side of a separate sheet of paper, write in 50 words or less your suggestion for "A Practical Method Of Reducing Automobile Accidents In The United States." Print your name and address in the upper right-hand corner of this sheet of paper.

4. Mail the completed Official Entry Blank, together with the separate sheet containing your statement, to:

Old Car Contest No. 2
MECHANIX ILLUSTRATED
67 West 44th Street
New York 36, N. Y.

To be eligible, your entry must be postmarked not later than midnight, January 3, 1953.

5. You may submit as many entries as you like. But each entry must be submitted on an Official Entry Blank taken from the December 1952 issue of MECHANIX ILLUSTRATED.

6. Prizes will be awarded on the basis of correct identification of the greatest number of automobiles. In case of ties, tying entries will be judged for originality of thought and expression contained in the entrant's statement "A practical method of reducing automobile accidents in the United States."

7. Contest is open to any resident of continental North America except employees of Fawcett Publications, Inc., its wholesale distributors and advertising agencies, and their employees and families. Contest is subject to all Federal, state and local regulations. All entries become the property of Fawcett Publications, Inc., and no entries will be returned. The editors of MECHANIX ILLUSTRATED are the judges of this contest and their decision shall be final.

8. Winners will be notified by mail, telephone or telegraph. Names of winners will be published in MECHANIX ILLUSTRATED.

SEVENTH PRIZE: $25.00

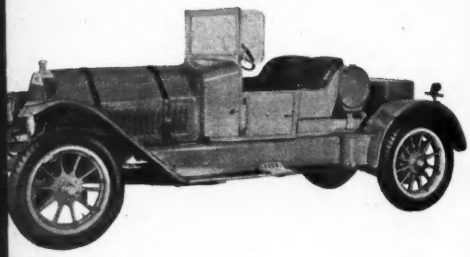
EIGHTH PRIZE: $25.00

NINTH PRIZE: $25.00

TENTH PRIZE: $25.00

TURN THE PAGE

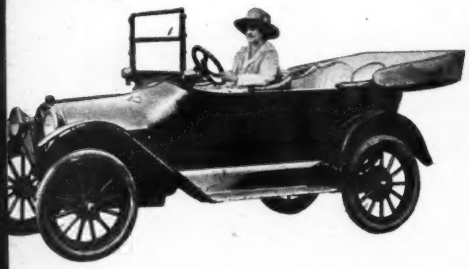
1. Thomas Flyer • Stutz • Mercer



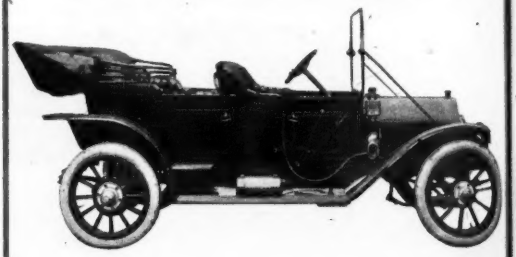
2. Brush • Buick • Marmon

3.

5. Flanders • Chevrolet • Dodge

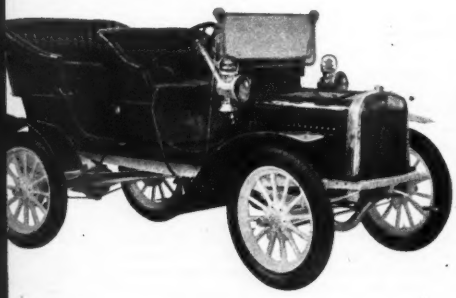


6. Firestone-Columbus • Elkhart • Pope-Hartford

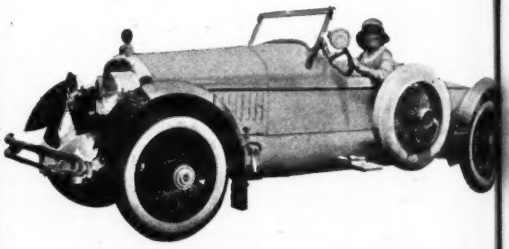


7

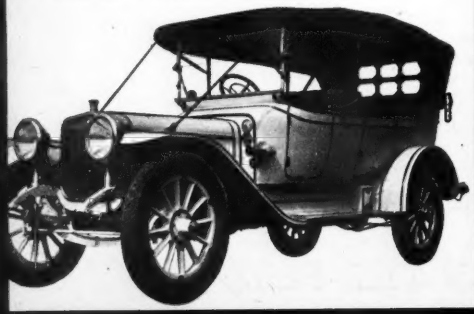
9. Ford • Rambler • Chadwick



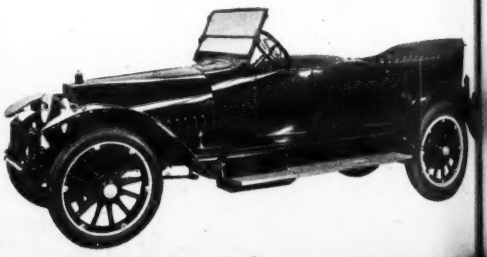
10. Roamer • Cunningham • Moon



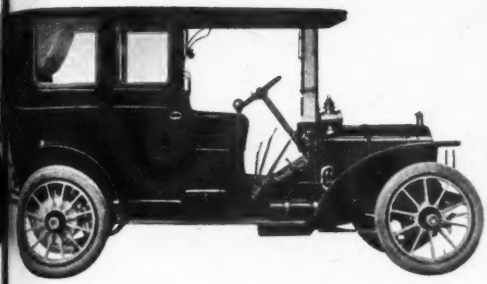
11. Cadillac • Winton • Stearns



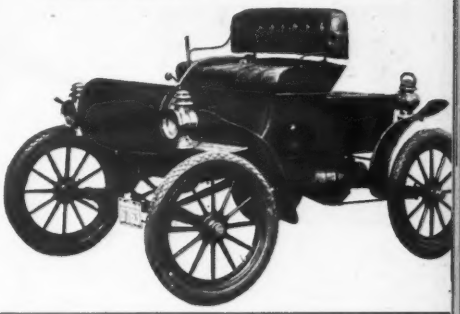
12. Locomobile • Hupmobile • Owen Magnetic



3. Packard • Great Arrow • National



4. Detroit Electric • Autocar • Oldsmobile



7. White Steamer • Haynes • Regal

8. Autobuggy • Waverly Electric • Pierce Motorette

OFFICIAL ENTRY BLANK

Mail to: Old Car Contest No. 2
MECHANIX ILLUSTRATED • 67 West 44th Street, New York 36, N. Y.

My choices are *(circle one name after each number)*:

1. Thomas Flyer • Stutz • Mercer
2. Brush • Buick • Marmon
3. Packard • Great Arrow • National
4. Detroit Electric • Autocar • Oldsmobile
5. Flanders • Chevrolet • Dodge
6. Firestone-Columbus • Elkhart • Pope-Hartford
7. White Steamer • Haynes • Regal
8. Autobuggy • Waverly Electric • Pierce Motorette
9. Ford • Rambler • Chadwick
10. Roamer • Cunningham • Moon
11. Cadillac • Winton • Stearns
12. Locomobile • Hupmobile • Owen Magnetic

On a separate sheet of paper I enclose my suggestion (in 50 words or less) for "A Practical Method Of Reducing Automobile Accidents In The United States."

Name (Print).....

Street Address.....

City or Town..... State.....

Entry must be postmarked not later than midnight January 3, 1953

hobby

Chester B. DeGavre—Bird-Carving Colonel

He carves other birds, too, like this Sandpiper.

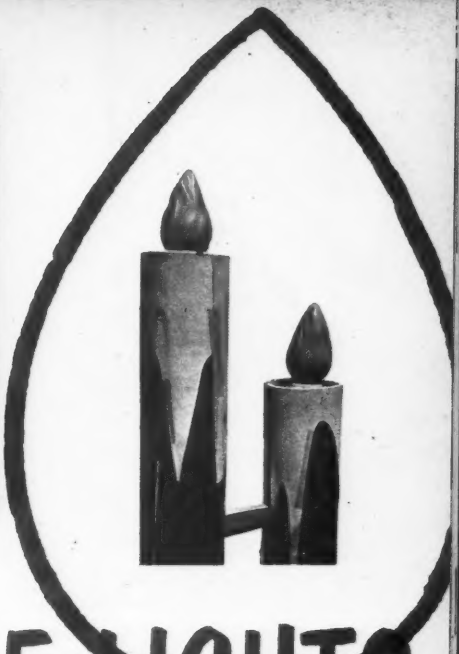
C. B. DEGAVRE wears wings on his uniform for a number of reasons. One is that he's a paratrooper and has made 94 jumps to test new equipment besides combat jumps in France during World War II. Another is that he's the former Chief of Air Requirements for the Army's Research and Development Division, now on active duty in Korea with the X Corps. Last but not least, he's a duck-decoy carver from way back.

He started duck hunting when he was 12 years old and began whittling his own decoys. When he entered West Point and later had to travel in his military career, he was reluctant to abandon his carving hobby and so switched to miniatures of the many wild ducks he had hunted.

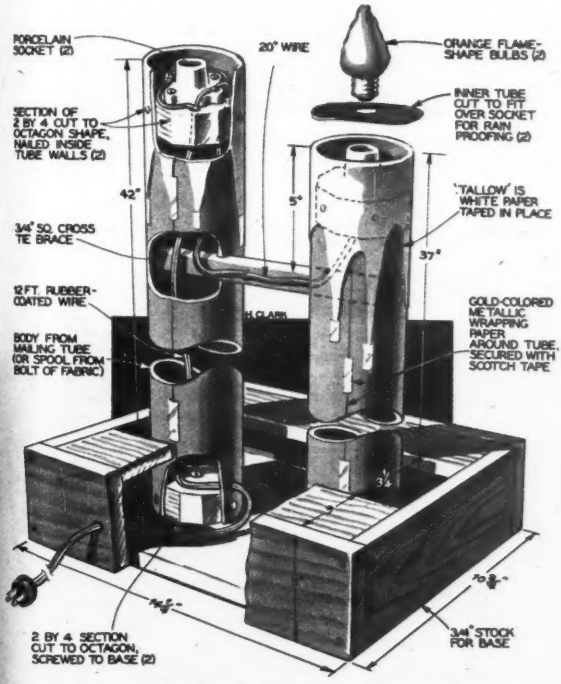
For material he picks up cedar driftwood along beaches and lake shores to use for bases for his birds. The bodies are made from bass wood and the heads from mahogany. It takes him about five hours to carve and sand a pair of ducks, and another 25 hours to paint and mount them. He uses regular artists' oils and gives them a realistic coloring by referring to color reproductions of the real waterfowl. •

The Colonel's desk is never too crowded to hold a flock of little ducks, exact in every detail.

He holds a pair of Canvasbacks in his right hand, Blacks in his left, after final painting.



GIANT YULE LIGHTS



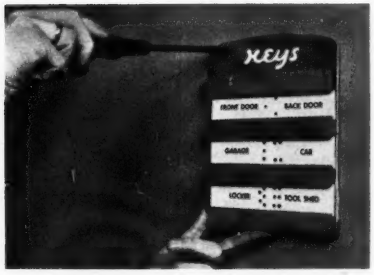
CONSTRUCTION OF CANDLES AND SUPPORT BASE (MAKE TWO UNITS IDENTICAL)

DECORATE your doorway this Christmas with these huge electric candles. You can make them for less than $5.00. The bodies are cardboard mailing tubes 3¼ in. in diameter. Cover them with gold-colored metallic wrapping paper, which will easily withstand the bad weather of the holiday season. Fasten paper "tallow" to the tops of the candles with transparent tape. Make the bases from ¾-in. pine and paint them bright green or red. Cut octagons from a piece of 2x4 to use as candle and lamp-base mountings. Mount porcelain lamp sockets on four of these. Fasten a 12-ft. length of heavy rubber-covered wire to each of the sockets in the 42-in. candles and a 20-in. length to each of the sockets in the 37-in. candles, then hook up the wiring as shown. Before putting the 20-watt bulbs in place, slip a rubber disk over each socket to protect the wiring from the elements. Add a holly wreath to your door or tie it up with a big red ribbon.—*R. H. Hawkins* •

The rack should be placed at some convenient spot, preferably nearest the door which is used the most for leaving the house.

Where's That Key?

Right at the doorway, if you construct this handy key rack.

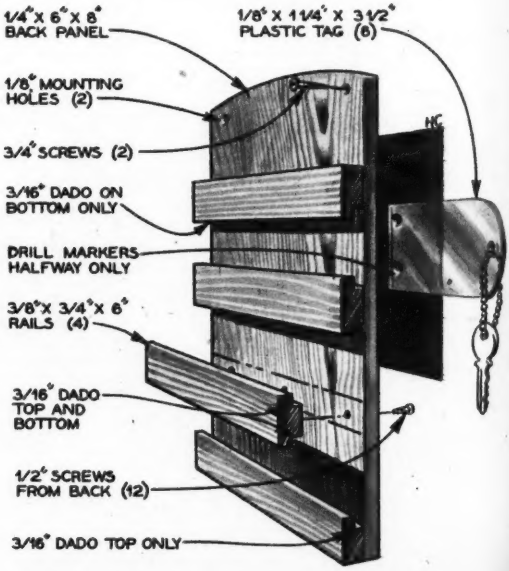


Use four flathead wood screws for hanging. Note code marks for quick key replacement.

ARE you always mislaying your keys? A key board fastened to a convenient wall spot will keep them in place if you remember to insert each key in its proper slot when you enter the house. Birch-faced plywood for the board and solid birch for the strips were used for this board. Type of wood, of course, is optional.

Cut the plywood board to size and round off the top corners slightly. Cut four strips of solid wood for the rails. Two of these strips are dadoed along one edge only. Cut the dado $\frac{1}{16}$ in. wide and the same depth. Letter in each space the name of the door whose key will occupy the space. Mark also a series of dots on each space, beginning with a single dot for the top left hand key and ending with six dots on the lower right hand key space. Lettering and dot markings should be made with waterproof India ink.

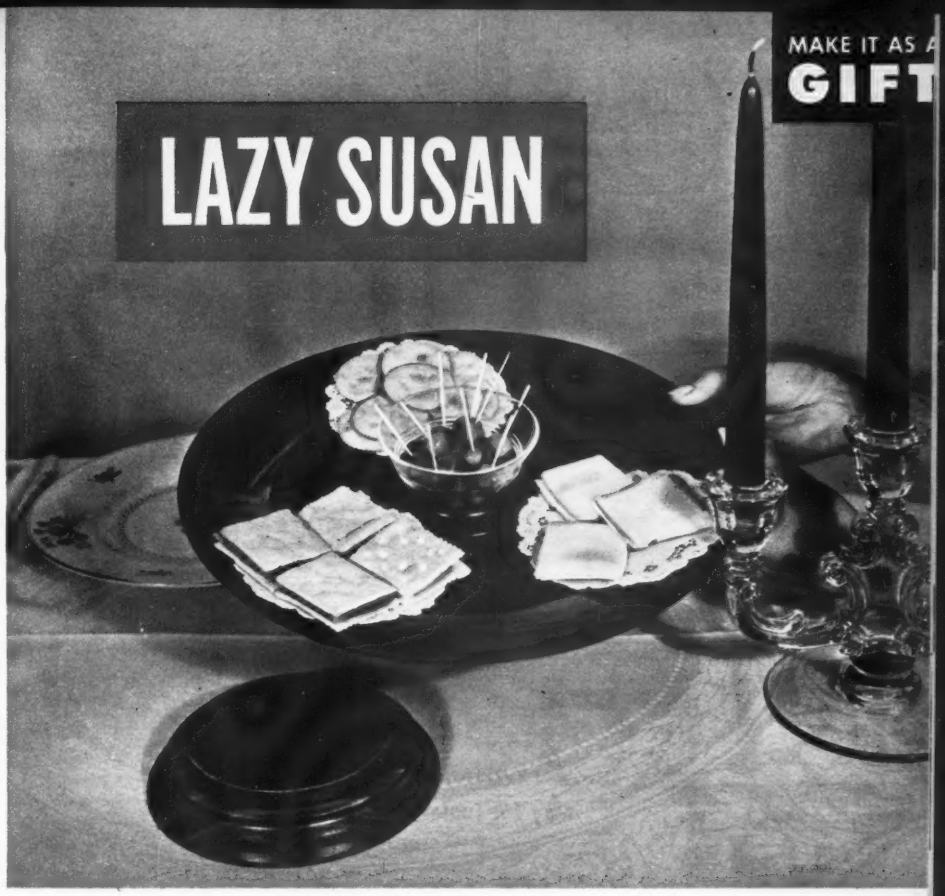
Cut the lettering decoration, KEYS, of a contrasting wood. Drill four small holes through the two upper corners of the board and at the bottom through which screws may be passed to fasten the board to the wall. Give all pieces two coats of shellac before assembling, rubbing down the first coat with steel wool before [*Continued on page* 158]



 Photos by G. Tewksbury

MAKE IT AS A
GIFT

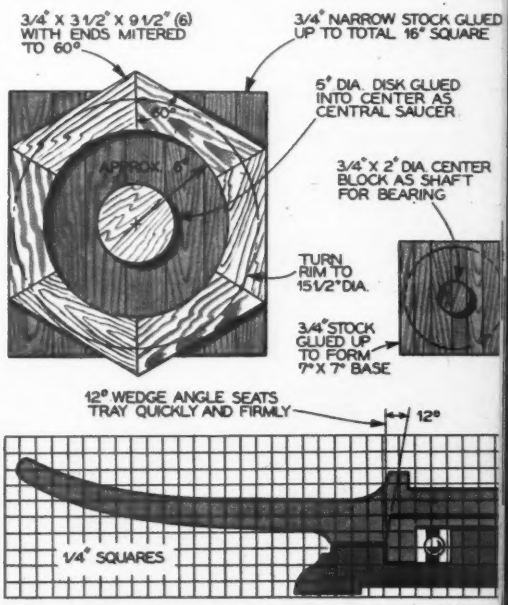
LAZY SUSAN



The beautiful bowl of this unit can be lifted off its base to double as a tray.

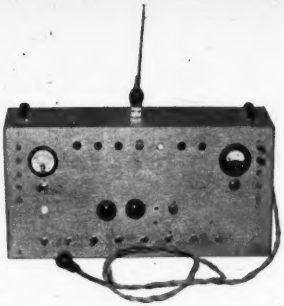
DESIGNED for appearance as well as for practical service, this unique lazy Susan has two special features: (1) ball bearings permit the tray to revolve easily and (2) the tray portion was built as an individual unit. Thus, the tray itself can be lifted easily from the base section for use as a regular serving tray. A wooden cover makes the bearings invisible when the tray is removed.

This project is ideal for utilizing short and narrow ¾-in. stock. No stock over 16 in. in length is required. Before gluing, I ripped all stock that was over 3 in. wide in order to reduce warpage. Walnut was used for this particular piece, but any hardwood is satisfactory. [*Continued on page* 152]



PROFILE OF TRAY AND SECTION THROUGH BASE AND BEARING

If your youngster likes to watch "space" programs, this panel will give him more to do than the hero.



Intergalactic Space Control Panel

MAKE IT AS A **GIFT**

A fascinating, safe, electrical toy for junior space travelers.

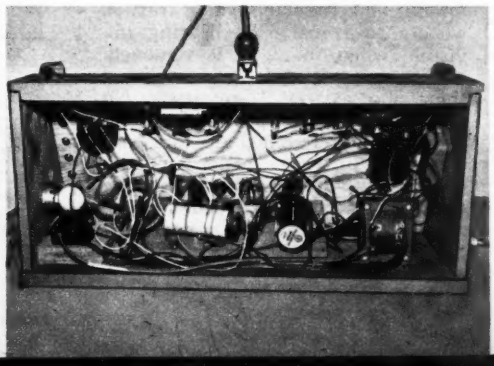
By Robert Brightman

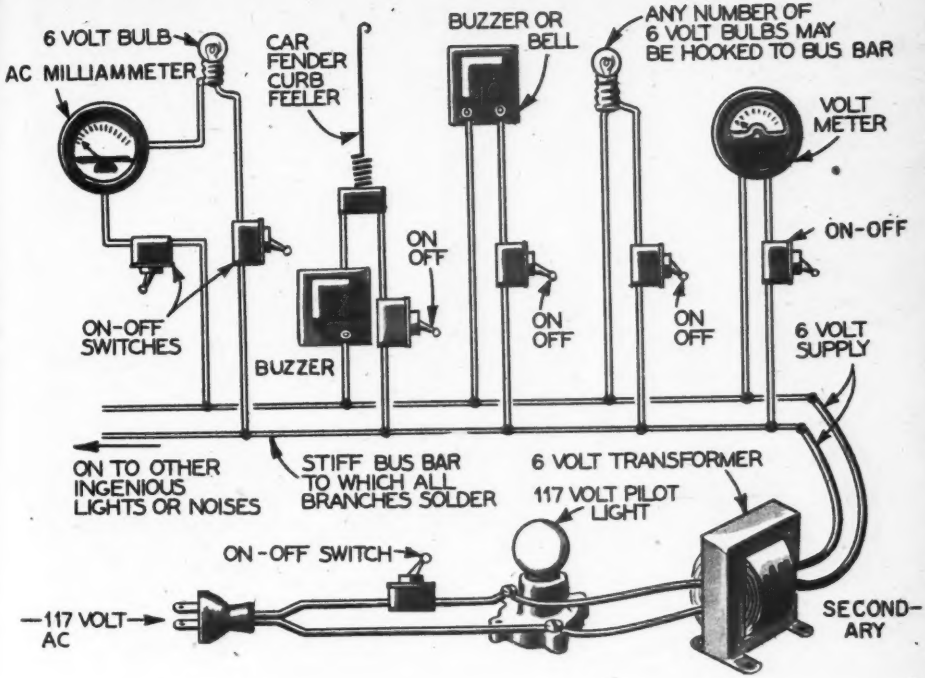
"GEE, Bob, when are you ever going to finish that control panel for me?" When your youngster starts off on a tack like this and keeps it up for a few weeks there is only one way to keep peace in the family. And that is to finish the job. *The* control panel as it is called by my son and all his friends is one of the most fascinating toys a father can make for his boy. Essentially it consists of a six-volt transformer, a series of toggle switches and miscellaneous lights, bells, buzzers and meters.

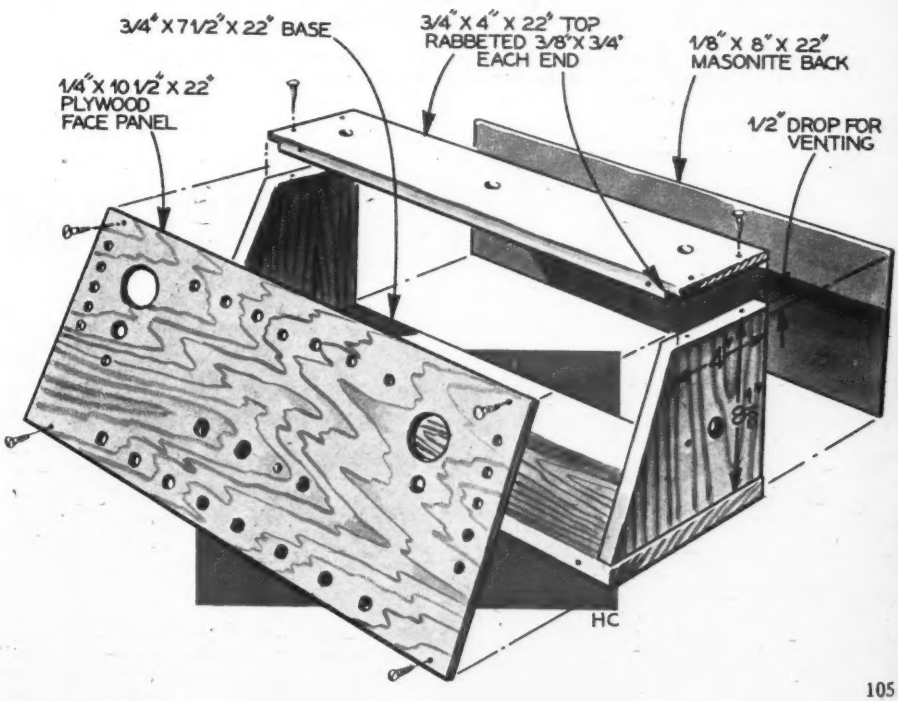
The first step is to rummage through the spare parts box [*Continued on page* 156]

The earphones can be hooked up to a flashlight battery, or if you want to elaborate on this, connected to a crystal set or one-tube radio.

Back panel removed showing wiring. Use a different color for each circuit. Note two lengths of bus bar at bottom of cabinet for common leads.




6 VOLT BULB
AC MILLIAMMETER
CAR FENDER CURB FEELER
BUZZER OR BELL
ANY NUMBER OF 6 VOLT BULBS MAY BE HOOKED TO BUS BAR
VOLT METER
ON-OFF
ON OFF
ON-OFF SWITCHES
BUZZER
ON OFF
ON OFF
6 VOLT SUPPLY
ON TO OTHER INGENIOUS LIGHTS OR NOISES
STIFF BUS BAR TO WHICH ALL BRANCHES SOLDER
6 VOLT TRANSFORMER
117 VOLT PILOT LIGHT
ON-OFF SWITCH
—117 VOLT→ AC
SECOND-ARY


3/4" X 7 1/2" X 22" BASE
3/4" X 4" X 22" TOP RABBETED 3/8" X 3/4" EACH END
1/8" X 8" X 22" MASONITE BACK
1/4" X 10 1/2" X 22" PLYWOOD FACE PANEL
1/2" DROP FOR VENTING
HC

For a highly decorative effect, especially when used as a table centerpiece, combine a giant candle, a little coniferous greenery, and a few of your favorite holiday figurines.

Candles for Christmas

Make these unusual candles for use in your decorative holiday arrangements or as unique and exclusive gifts for neighbors.

By Elma Waltner

Fancy candles add a festive air to any occasion. You can use up odds and ends of old candles to make new ones in a variety of sizes and shapes.

Giant candle (opposite page) has a cardboard foundation covered with wax drippings. Wick in molded job (above) is birthday-cake candle.

Star-shaped candles to float in a bowl of water should be molded in a cardboard form. Grease the inside of the form before pouring the wax.

FAT, squatty candles, candles that glow as they burn, candles in the shape of favorite toys—all these and others can be yours. You probably have most of the materials already in the form of candle ends and stubs that have outlived their usefulness. These can be melted down and cast in a number of different ways.

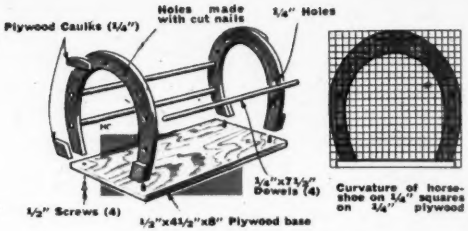
Wax is highly inflammable. For this reason, it should never be melted by putting its container directly on a burner. Instead, set the container in a pan of hot water. A good container is a tin can with a pouring lip bent in its rim.

The simplest candles to make are those cast in individual gelatin molds. Grease each mold lightly with Vaseline or vegetable shortening. Melt the wax and fill the mold. When the candle begins to set, insert the wick. A birthday-cake candle makes a good wick. Simply push it into the center of the candle. When the candle is cold, it will slide out of the mold easily. [*Continued on page* 176]

Round candles are made in a hollow rubber ball. Place the ball in a cup before pouring the wax. Install wicking when the wax begins to stiffen.

Tin can is used for a fat candle. Employ top of can as a false bottom to hold wick in place. Wrap free end of wick (right) around a pencil and rest the pencil across the open end of can.

Good Luck Bread Tray



THE horseshoe, proverbial symbol of good luck and happiness has been used in the design of this attractive little bread server. It can be easily made of scrap material, and will cost you very little. The drawing at the top gives all dimensions and construction details.

The horseshoes are made of quarter-inch plywood. Three small blocks of wood located as shown are glued to them to stimulate the caulks of an actual shoe. The four hardwood dowels are glued into mating holes to connect the horseshoes. Finish with shellac or clear lacquer.—*Bertram Brownold* •

Serve the morning's toast in this attractive tray instead of the usual plate.

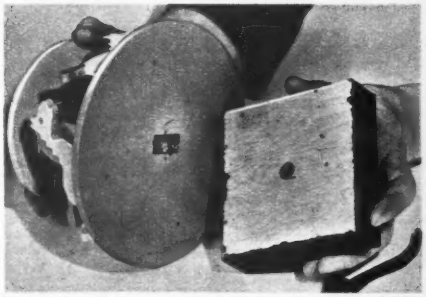
MAKE IT AS A GIFT

MAKE IT AS A **GIFT**

MUSICAL MERRY-GO-ROUND

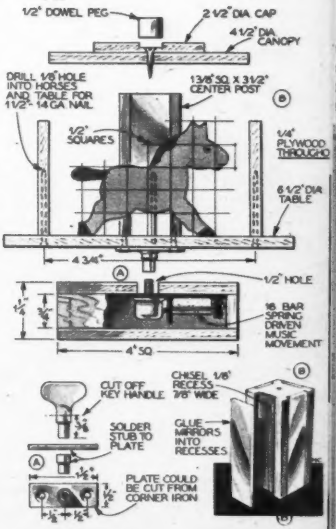
COMBINING action with a tune, this novelty will make a hit with any youngster. Wooden parts, with exception of the center post, are ¼-in. plywood. Sides of the center post are recessed to accept mirrors attached with linoleum cement.

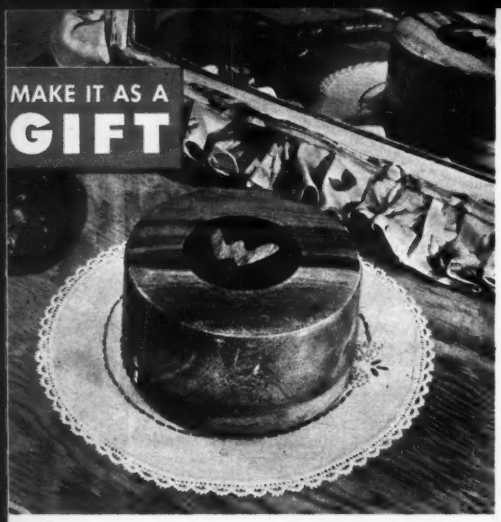
Horses are fastened to turntable with nails. For further rigidity, drive brads into the front hoofs. Musical movement, which may be obtained from Albert Constantine, N. Y. C., is mounted in the base. To wind, turn the canopy.—*N. T. Shelton* •



Saw off and discard the key handle, then solder the threaded portion to a metal plate, as shown.

Paint the unit colorfully: canopy pink, center post black, two horses white, two blue. Manes were outlined in gilt.





inlaid DRESSER BOX

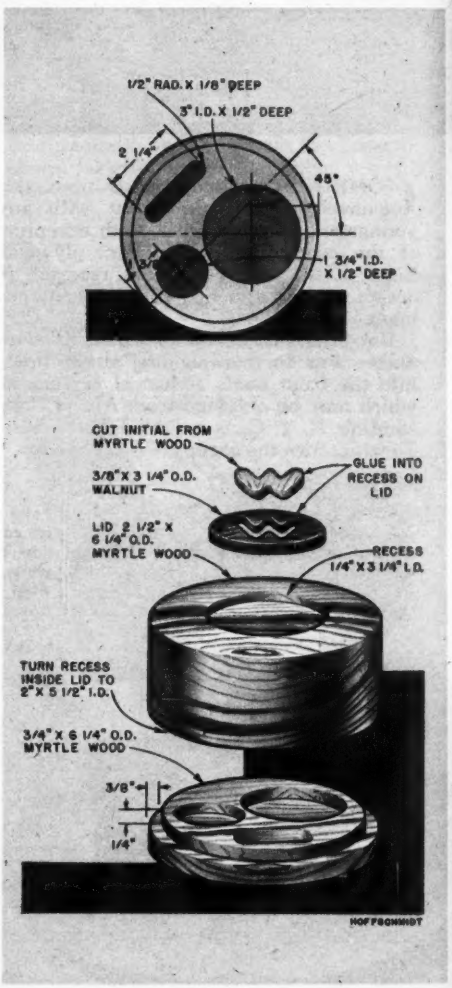
HERE'S a neat project for the advanced lathe worker. It combines lathe turning, inlay work and routing. The result is a handsome cosmetic or jewelry box. Myrtle wood is used for the box cover with an oak initial in a walnut disk inlay. The base is a disk of gumwood which blends nicely with the other woods.

If you plan to turn the offset circular recesses, you must [*Continued on page* 178]

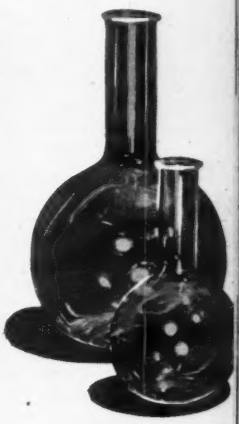
Spread the glue over both surfaces and firmly press the letter into the opening in the disk.

Circular recesses may be either turned on a lathe or routed. The lipstick holder is routed out.

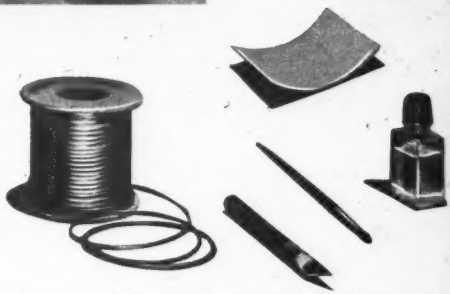
Force-fit cover onto the base and finish turning cover after the initial disk has been glued in place.



Glass and Flask Set



HIGH-STYLE glass sets are easily made from common glasses and inexpensive Florence flasks. The latter can be purchased from a chemical or druggists' supply house. You can prepare as elaborate a set as you wish, for the glassware comes in a variety of sizes. The flasks not only look beautiful, they are extremely practical: made of Pyrex, they can be heated directly on a stove. The plastic lacing is ⅛ in. wide and has a cotton core. It is available in many different colors. Sheet cork under the lacing provides adequate insulation from hot liquids.—*Andrew Takas* •



Raw materials are glasses, flasks, sheet cork, plastic lacing, and a plastic solvent such as acetone, lacquer thinner, nail-polish remover.

Cork is used on the flasks that will hold hot liquids. Rubber band holds cork in place while wrapping lacing. Make sure all turns are tight.

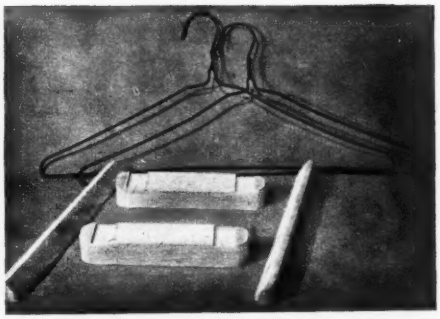
Tuck end of lacing under last three turns, pull tight, trim off excess, and seal by applying a little solvent at point where lacing tucks in.

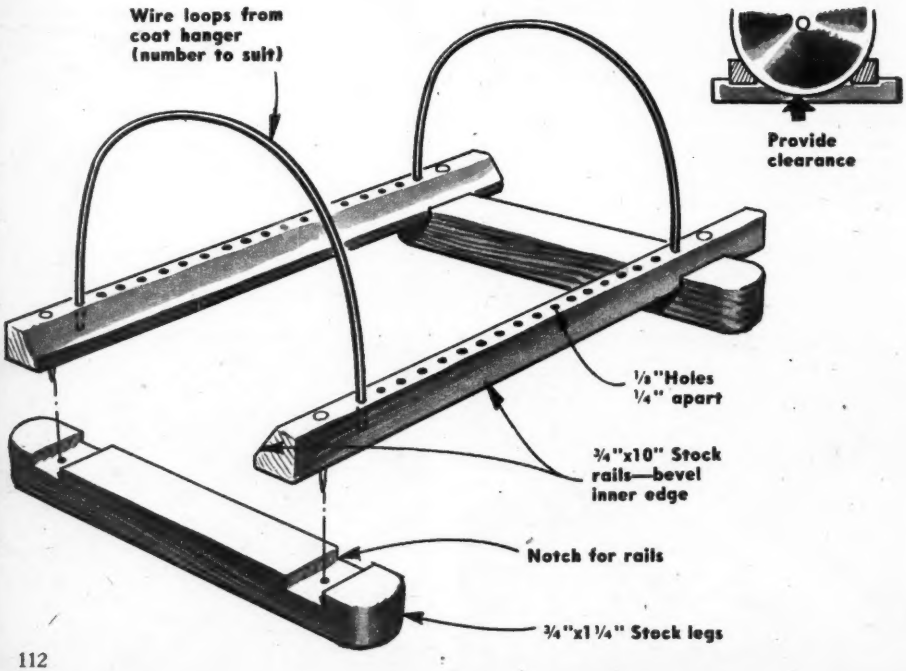
MAKE IT AS A **GIFT**

Child's Record Rack

JUNIOR grade disk jockeys will be delighted with a handy rack designed to fit their own needs. All you'll need for the job are some wire coat hangers and a few pieces of scrap lumber, shown at right. Given dimensions may be changed if desired.

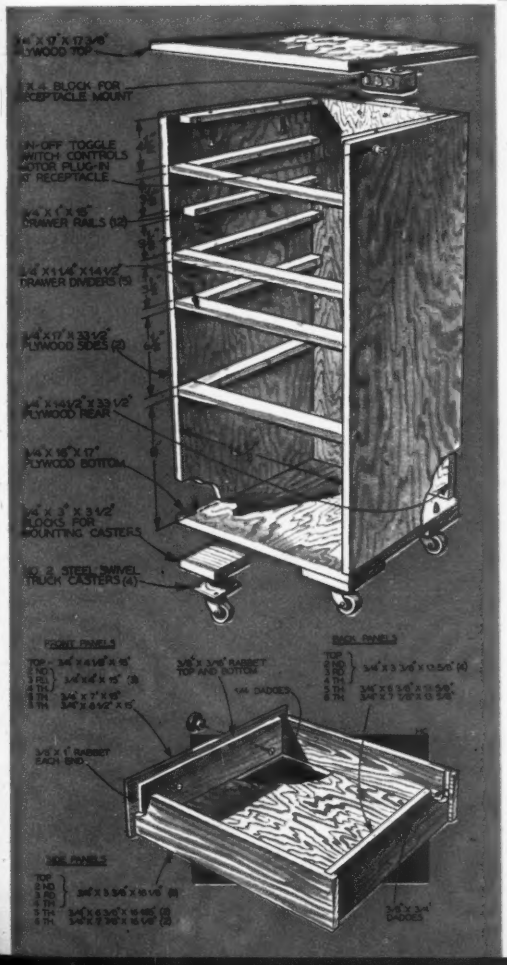
First cut the wooden frame components. The bevels on the inside edges are necessary in that they permit an adequate seat for the records. Assemble the parts, then cut the hangers and bend to a half-round shape; you'll find that a quart paint can is an excellent jig for this procedure. Drill holes at ¼-in. intervals and insert the wires. This completes construction. Finish with bright enamel.—*Jim Miller* •





DRILL PRESS CABINET

Stand is mounted on casters so it can be moved to center of shop when working on long material. Accessories are conveniently stored in drawers.



THE many tools and accessories that one accumulates for use with a drill press are kept near at hand in the drawers of this stand. Fixtures and jigs can be hung from hooks screwed into its sides. Long stock can be handled by moving the stand to the center of the shop.

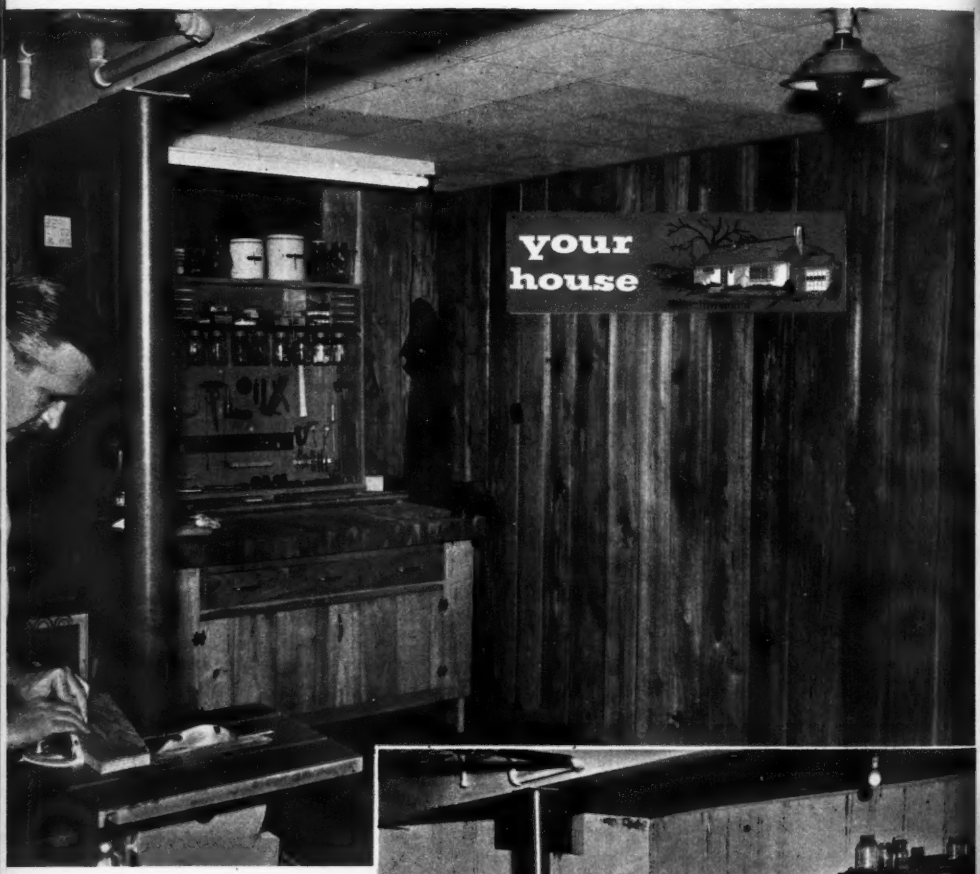
Make the cabinet of ¾-in. plywood. Drawer guides and dividers are ¾-in. stock ripped to the necessary widths. Drawers are ¾-in. stock with ¼-in. plywood bottoms. Cut all the pieces to the sizes given in the drawings. Note that two extra guides are needed at the top of the cabinet to give clearance for the toggle switch and wire. When assembling, use glue along with the nails or screws for greater rigidity.

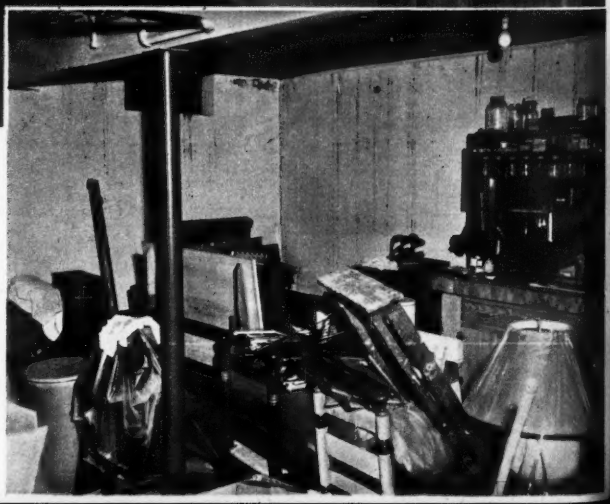
Four No. 2 pressed-steel swivel casters make the stand movable. Install a double receptacle at the rear of the top. One socket takes the plug from the drill-press motor. Connect this socket to the toggle switch at the right side of the cabinet. The other socket takes the plug from any portable light or small electric tool. Bolt the drill press to the top of the stand with its back edge flush with the back edge of the stand.

This stand can be used for other tools such as a band saw or jig saw. The number and sizes of the drawers can be changed to suit individual needs.—*Myrlin Wieder* •

Heaven is Downstairs

By William L. Parker





Take one dismal, junk-loaded cellar (right), panel the walls with pecky cypress, install some inexpensive ceiling squares and good lighting—and here's what you get. Okay, huh?

For boring holes to anchor the furring strips for paneling, a star drill is often enough.

But on extra-tough concrete, a carbide-tipped drill bit must be alternated with star drill.

Or, furring strips can be applied with Surface Anchor nail plates fastened with adhesive.

If you have a cellar that looks like h - - - and you want to make it into a room that looks more like The Other Place, these ideas may help speed the miracle.

"SOME day," I kept telling myself, "I'm going to clean out that junked-up cellar of ours and make it into a real fancy, real useful workshop-playroom."

But the place was so dreary, with all the clutter of flotsam and jetsam you dump downstairs when you're sick of looking at it upstairs, that I never got around to doing the actual work. Then one day a neighbor, who was probably weary of hearing me talk so big, told me where I could pick me up some really terrific pecky cypress lumber at a really terrific bargain—provided I bought it right away. I bought same.

That did it. The cypress, mellowed to a warm golden luster that didn't even need staining, looked like it was born to be used for wall paneling. Now obviously I couldn't install such handsome stuff on the walls until that barren, pipe-and-joist-ugly ceiling was taken care of. So I nailed ceiling tiles to the joists, in practically no time flat.

The new ceiling appeared so photogenic that the walls seemed more dismal than ever. Better get that paneling up real fast, I thought. So, I laid in a stock of 1x2 in. furring strips and fastened them to the foundation walls horizontally, not too tough a job once you get started. (Four methods are illustrated here.)

Next step was to put in the wiring for the

The light, 1x2 in. furring strips can easily be held in place by one man while he levels them off evenly and draws score marks on the wall.

With a Remington Stud Driver, which shoots steel studs through wood and into wall with .32-cal. cartridges, applying furring strips is a snap.

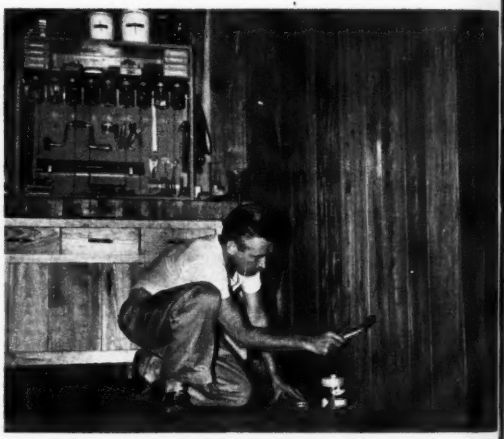
Although many types of waterproofing compounds will do a good job on damp walls, author found ordinary asphalt roofing coating was effective.

Before applying the paneling to waterproofed walls, be sure to treat inside surfaces of the wood. And make sure lumber is thoroughly dry.

outlet boxes and light fixtures, not a very difficult task. After that, some waterproofing of the walls was in order. I was now ready to nail up that gorgeous pecky cypress, so called because the surface looks as though an intoxicated woodpecker had been working on it, creating a most unusual and striking effect.

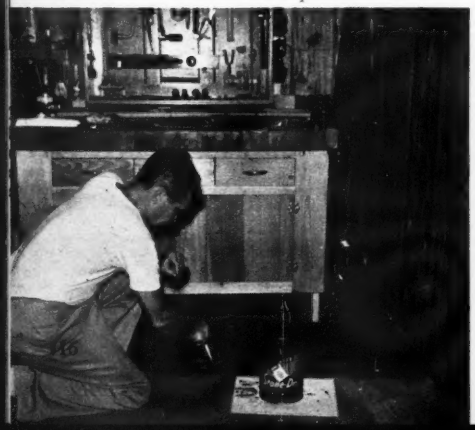
Cypress is soft, an easy wood to work with, and the paneling went up quickly. After countersinking each finishing nail it wasn't even necessary to fill in the holes. Who'd ever notice a few little old nail holes amid all those pecks?

Ceiling and walls now looked pretty sharp. So chucking out all the old junk, and then tidying up the place, was a real pleasure. It may be an exaggeration to call a cellar Heaven—but mine sure doesn't look like That Other Joint any more. Total cost of materials: about $75. Estimated increase to value of house: $500. •



On open-grained wood such as pecky cypress, used here, a commercial preservative like Satinlac will seal wood without altering its natural color.

To enhance the looks of a concrete floor, make it water-resistant and easier to clean, special enamels are available in a wide range of colors.



Sixteen-inch Fiberlite accoustical tiles, nailed to the overhead joists (below), help greatly to give what was once a cluttered cellar a finished look.

New Products for your house

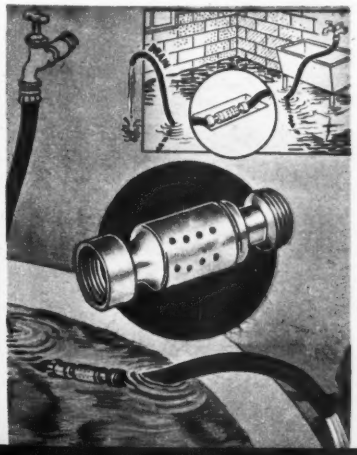
Overhead garage door kit consists of pine framing, redwood paneling, and hardware. It comes ready to assemble and install. Cossart Enterprises, Los Angeles, Calif.

★ For more details about products on this page, write: Dept. K MECHANIX ILLUSTRATED, 67 West 44 St., New York 36, N. Y.

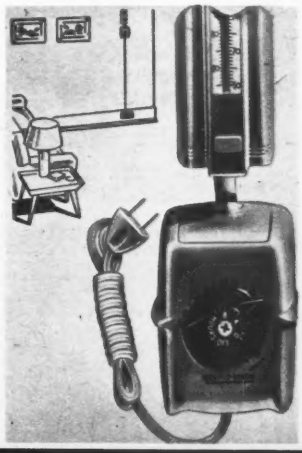
Metal wall tiles are now available in kit form. Each kit has 56 colored tiles, sealer, mastic, brush, mastic spreader, and wooden joint-pointing tool. The Vikon Tile Corp., Washington, N. J.

Hardboard panel with half-lap joints is 16 in. wide and 8 ft. long. Called Tee-N-Gee, it can be finished with paint, wax, or clear varnish. Forest Fibre Products Co., Forest Grove, Ore.

Suction pump in a garden hose connected to any nearby water faucet empties flooded cellars. M. P. White Co., Boston, Mass.

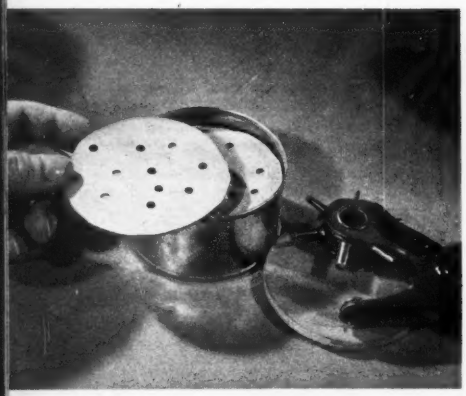


Heat control turns thermostat down at night, up again in morning. Automatic Controls Corporation, Ann Arbor, Michigan.



All you need is a screwdrive to install this combined doc knob and lock. Mastercra Products, Boston 10, Mas

CRAFTSMAN'S CORNER

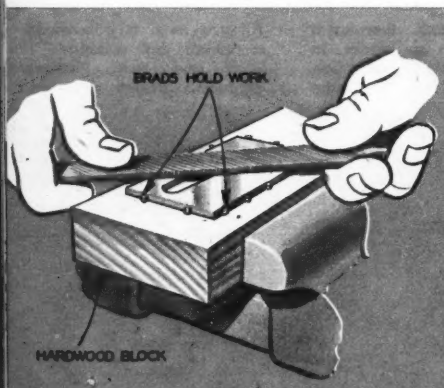


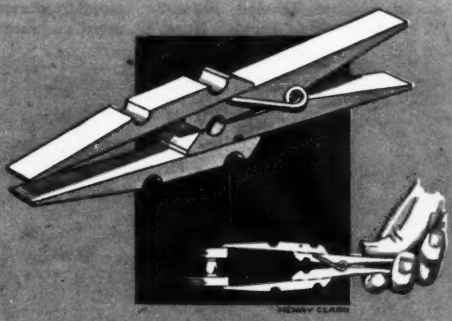
Reduced vibration from power tools will result if you partly fill a tin can with disks cut from an old inner tube. Cut staggered holes in each disk, lay a plywood disk over the rubber, set under machine legs.

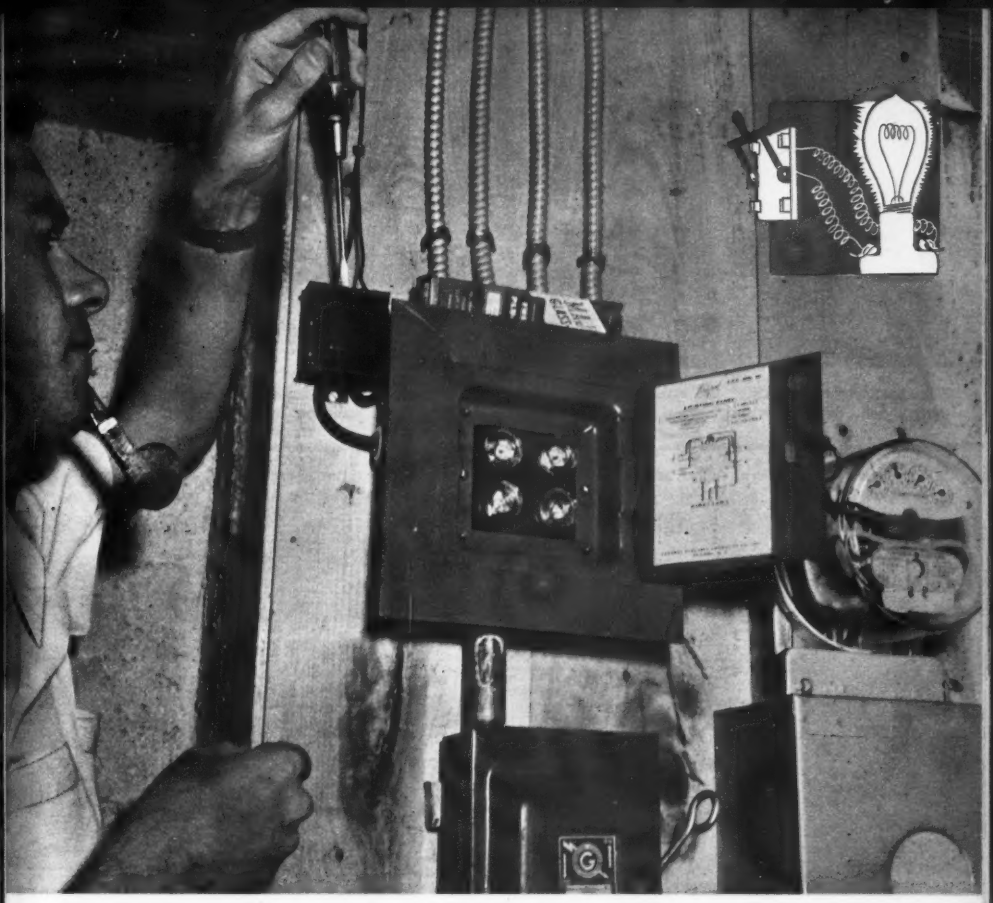
Paint brushes are difficult to clean thoroughly because old paint accumulates and dries near the ferrule. Prevent this by keeping that area well lubricated with raw linseed oil, starting when brush is new.

Filing down a washer or a thin piece of metal can be awkward. An easy method is to place the metal on a piece of hårdwood, retaining it with small nails driven around the edges. Clamp in a vise, and proceed.

Big-mouthed clothespin of the type illustrated can achieve a bite of 1¾ in., and come in mighty handy for modelmakers. Just take apart a similar pin and glue the elements to original pin's jaws as shown.







Meter, entrance switch, and fuse cabinet are installed at point where power lines enter building.

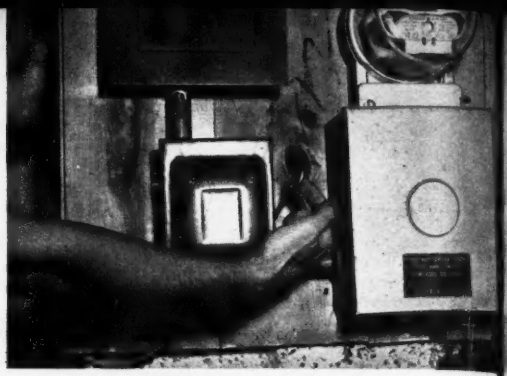
The Wiring in Your Home

Heat, power, and light are sent all through a house over the network of wires known as the wiring system. Here's invaluable advice from Westinghouse on how to plan a new or improve an old wiring system.

THROUGH the walls, floors, and ceiling of your home runs a network of wires that brings you a 20th Century miracle—electric power. It is popularly but erroneously believed that a house with "lots of outlets" is a house that is well wired. As important as it is to have outlets in sufficient quantity, that is only half the story. Equally important are the number and types of branch circuits installed.

If all the lights in the home were on a single circuit, the entire home would be plunged into darkness should the circuit fail. To avoid this, and also to keep the load on a circuit within the carrying capacity of the wire, the outlets are subdivided into groups and each group is served by its own circuit. [*Turn page*]

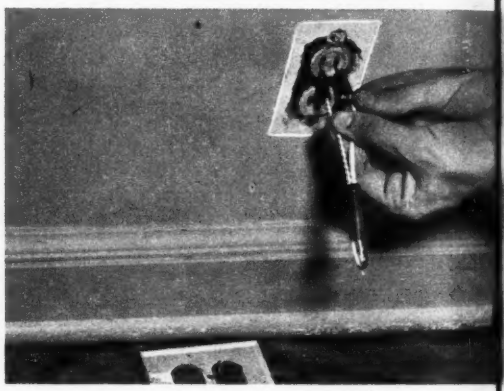
Because of its flexibility, BX cable is often employed to extend wiring previously installed.



To turn off all electricity in the house, pull the switch known as the main or entrance switch.

Most wiring codes require the house line to be grounded. The water piping is a handy ground.

Convenience outlet, here being checked with a neon tester, should be 12 to 18 in. above floor.



There are four types of circuits: *general purpose, appliance, individual equipment,* and *communication.*

General-purpose circuits are used to serve lights throughout the home and all convenience outlets except those in the kitchen, pantry, breakfast room, dining room, and laundry. Appliances generally connected to these circuits include radios, clocks, vacuum cleaners, fans, and heat and sun lamps.

Appliance circuits serve all convenience outlets in kitchen, pantry, breakfast room, dining room, and laundry. Equipment commonly connected to these circuits includes the refrigerator, roaster, mixer, toaster, ironer, and hand iron.

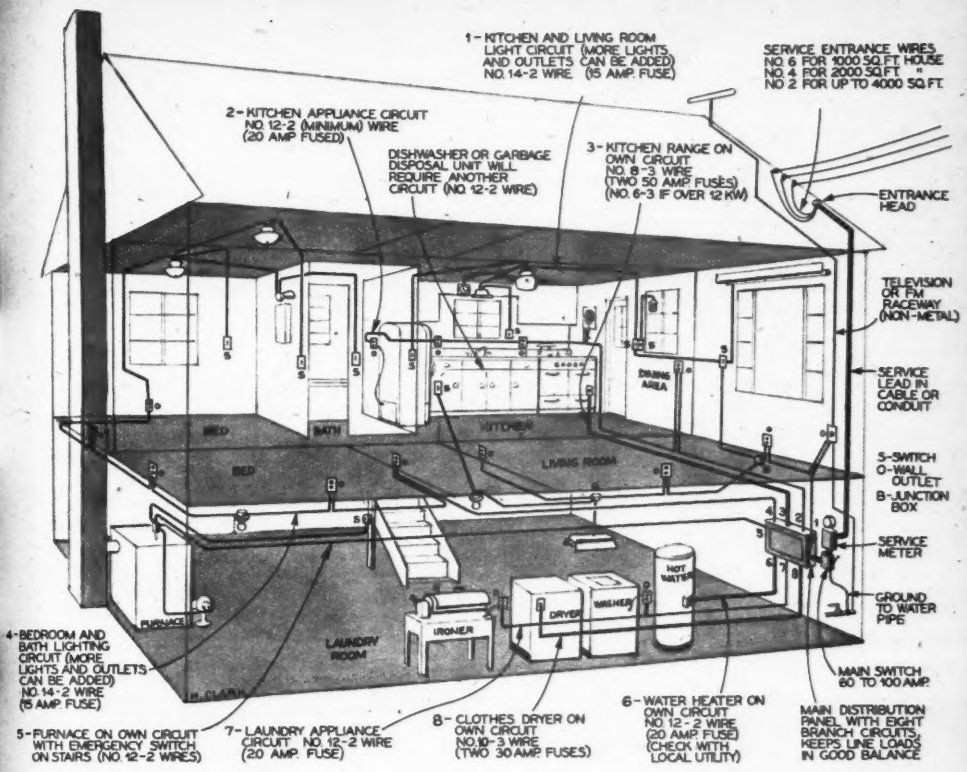
Individual equipment circuits serve single appliances or items of equipment such as the range, water heater, automatic clothes washer, and electric control on the heating plant.

Communication circuits serve bells, buzzers, interior telephones, and so on.

The number of general-purpose circuits needed varies with the size of the house. It is generally accepted practice to allow one circuit for each 500 sq. ft. of floor area. Areas in the basement and attic that lend themselves to possible future use for living —that is, where it is practical to create finished rooms at a later date—should be included in the calculations.

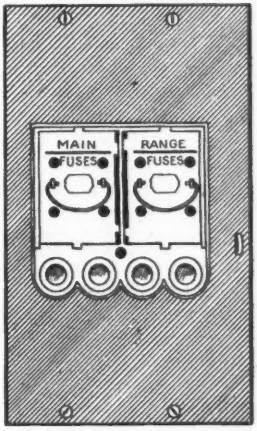
The number of appliance circuits is also determined by the floor area of the house. A home containing up to 800 sq. ft. should have three such circuits; from 800 to 1,500 sq. ft., there should be four circuits; from 1,500 to 3,000 sq. ft., there should be five circuits; and over 3,000 sq. ft., there should be six circuits.

The number of individual equipment circuits required is also based on the floor area of the home. Even though the equipment listed below may not be installed initially, it is desirable that the circuit provisions be made. Not less than four circuits are recommended in even the smallest house. These four circuits serve the cooking range, water [*Continued on page* 179]

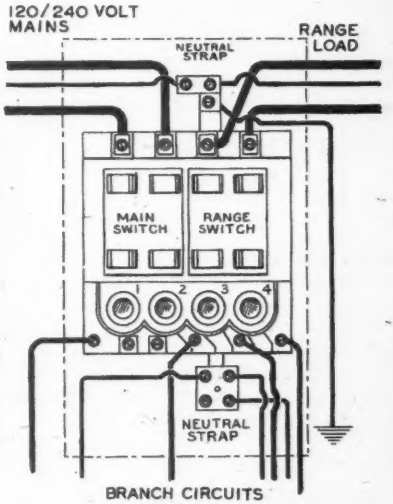


THOUGH NOT COMPLETE WITH EVERY SWITCH, LIGHT, AND OUTLET, USUALLY THERE, SKETCH SHOWS WIRING IN SMALL HOME WITH LARGE DISTRIBUTION PANEL INSTALLED, FURNISHING ADEQUATE POWER FLOW FOR DEMANDS MADE BY BRANCH CIRCUITS LEADING OUT FROM IT.

Here's a popular type of entrance switch. It has two main fuses (cartridge type); two range fuses (also cartridge type) for kitchen range, hot-water heater, or large motor; and four plug fuses that take care of four branch circuits.



FRONT



BRANCH CIRCUITS

Fireside Seat

THE utility bench shown here has a wide variety of practical uses. Wherever an extra seat is needed, this light and exceptionally sturdy bench fits in. For the unexpected guest at dinner, when watching TV, for use as a baggage rest, or at milady's dressing table, it serves admirably.

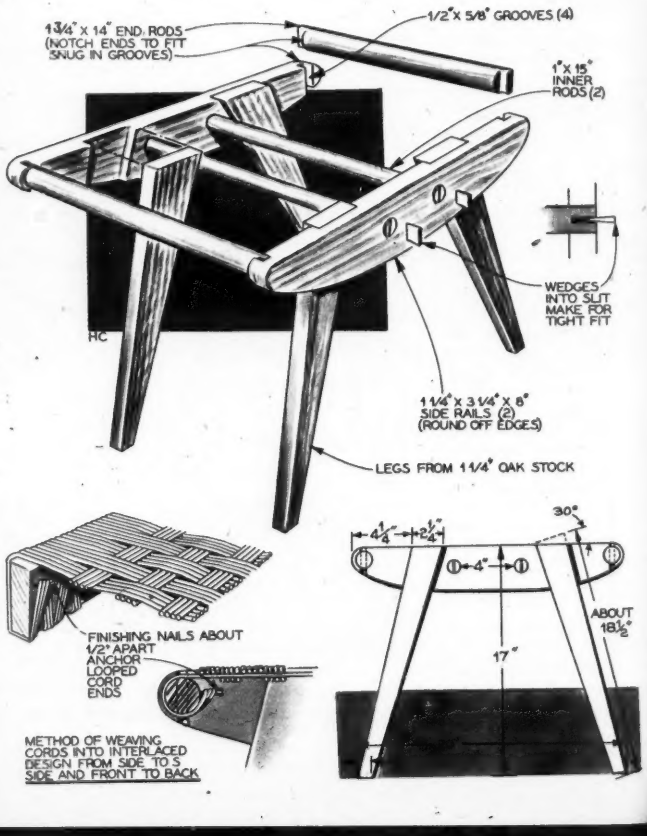
No nails, screws, bolts, angles or metal parts of any kind are used in its construction. It is so designed that glue and simple joints render the hardwood frame remarkably strong and rigid.

Use hardwood 1⅛ in. thick. The legs are fit into tapered dadoes on the inner surfaces of the horizontal members. After spreading glue, drive the legs downward into the dadoes and apply pressure with clamps.

Four pieces of round hardwood dowel connect the two horizontal members of the frame. Two of them are 1 in. thick and are glued into holes [*Continued on page* 180]

Sturdy unit has frame of 1⅛-in. oak. Seat is woven sisal.

Making the seat. Rope, rawhide, or webbing could also be used.



Dust off your antique andirons and convert them into anchors for a really unusual and sturdy magazine rack.

By Clarence A. Martin

Andiron Magazine Rack

IF you happen to have a pair of antique andirons—but no fireplace—here's how you can transform the set into brackets for an unusually original magazine rack. The method, design, and finish blend with the period of these Hessian andirons. Furthermore, the latter can be reconverted to their original use at any time and with very little effort.

The center section is of ¾-in. stock joined to make a finished board 13½x20 in. The use of a doweling jig for this operation insured perfect alignment of both the dowels and the boards.

The hand hole was cut with a coping saw; however, a jig saw could have been used just as well. The curved top and the cut out notches to receive the end pieces were cut on the band saw. At this point the Hessians were placed against the center section for fitting. It was found necessary to make a small additional cut for the lug that formerly fastened to the iron log supports. This lug later helped secure the Hessians to the center section.

The rails of $\frac{9}{16}$x2-in. stock consisted of six pieces 18⅞ in. long, two 10, two 7¾, and two 5⅝ in. long. The ends of the six end pieces were cut at an 8° angle. The top edges of the three front and the three back rails were planed at this same angle to make a flat top surface.

Sanding before assembly made the preparation for finishing easier. The flat surfaces were sanded with a portable belt sander. The curved surfaces were faired and made smooth with the same sander which was placed on its side in a shop-made jig. All other edges received the same treatment. Consequently, very little additional sanding was necessary after assembly.

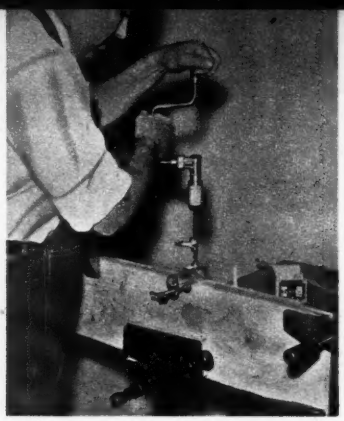
The end pieces were fastened to the front and back rails with flathead screws and glue. Screw heads were concealed with wood plugs, glued in, cut flush with the surface, and then sanded smooth.

The bottom, which measures $\frac{9}{16}$x5¼x20 in., was fastened to the bottom rails in the same manner as the ends—screws and wood plugs. Edges were then planed at 8°.

The next step was to assemble the complete unit with the exception of the Hessians. As the assembly screws will be concealed by the andirons, wooden plugs were unnecessary.

The finish selected was Minwax Puritan

First step in transforming the andirons is to remove the bolts which retain log irons in back.



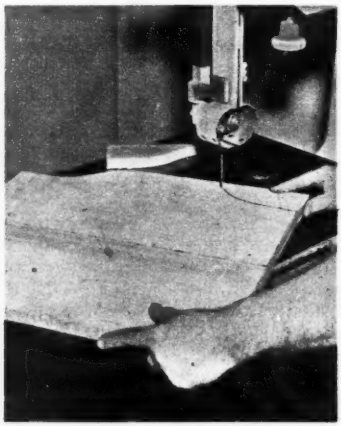
A doweling jig insures proper joining of boards that will comprise 13½x20-in. center panel.

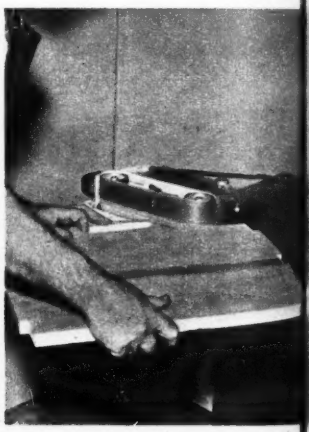
Pieces of scrap lumber protect edges while bar clamps secure the boards until the glue sets.

Cutting the 2-in. rails. Don't forget to saw the ends of the six smaller rails at an 8-degree angle.

Band saw is used to make curved top. Hand hole should be tackled with hand coping saw or jig saw.

Belt sander placed on its side in a jig fairs out curved sections, smooths them out as well.

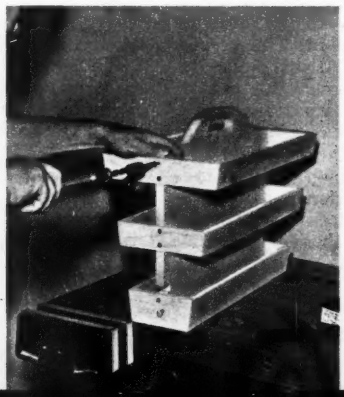


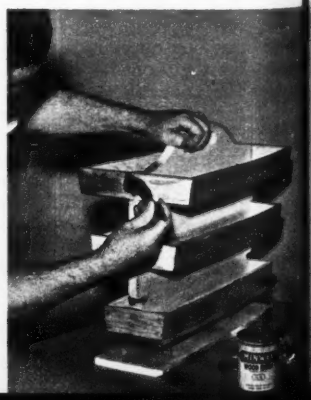


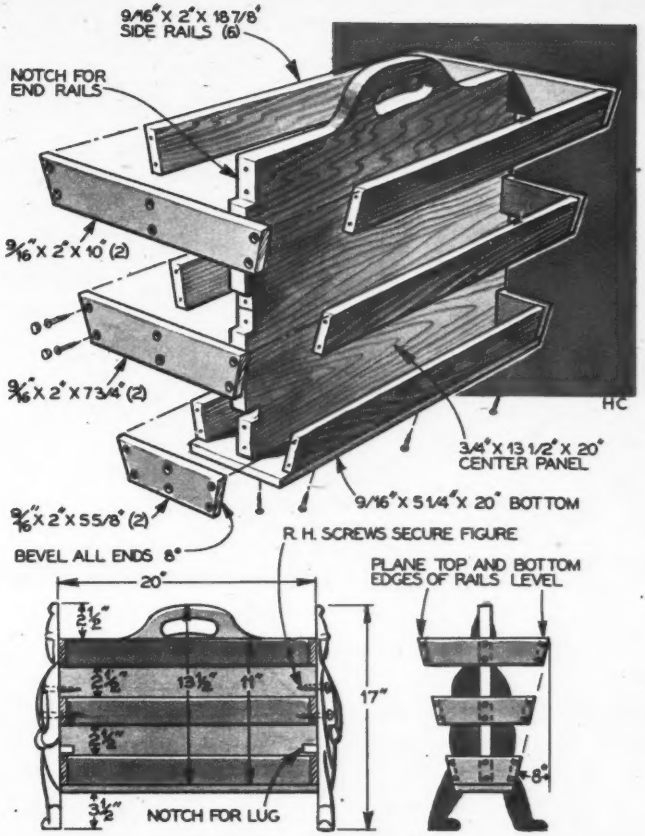
Components are assembled with screws and glue. Screw heads are concealed with wooden plugs.

Completed assembly. Note notches cut in the center panel to accept the lugs on both Hessian andirons.

Placing the rack on a simple stand permits finishing the entire surface in one easy operation.







Pine. It has just the right color to bring out the full beauty of pine with a finish similar to one that is usually obtained only after years of aging.

Puritan Pine is a transparent stain color that may be applied with either a brush or a cloth. However, a brush seems to do a better job. It does not raise the grain of the wood, nor does it show brush marks. About 20 minutes after applying, any excess is wiped off with a clean cloth and the remainder is allowed to dry overnight.

The second coat is simply applied over the first in the same manner and is permitted to dry for twenty-four hours. Paste wax, polished with the aid of a buffing bonnet attachment on your ¼-in. drill, produces a beautiful satin finish.

The final problem was to secure the Hessians to the wood section. A couple of extra buttons on the coat front did not seem out of place so the heads of round head wood screws were ground to a similar shape. Holes of the proper size were drilled in line with the other buttons. The screws were then driven through these holes into the center section. A brad through the hole in the lugs further strengthened the job.

The Hessians themselves could either be left with their well-used look or they could be refinished. A new look was in order, and the mixing of the exact colors for a perfect reproduction, and the task of applying them may be left to your own skill and imagination.

Before hitting on the design of this unit, many projects were dreamed up and discarded because they didn't reflect the simplicity and shape of the andirons themselves. This rack, however, with its straight lines and Colonial finish, seems perfect. The Hessian soldiers now stand guard over the family's favorite magazines.

Authentic, painted copies of the Hessian andirons, which are 17 in. in height, may be obtained from William Spencer, 710 Chestnut Street, Philadelphia, Pa. •

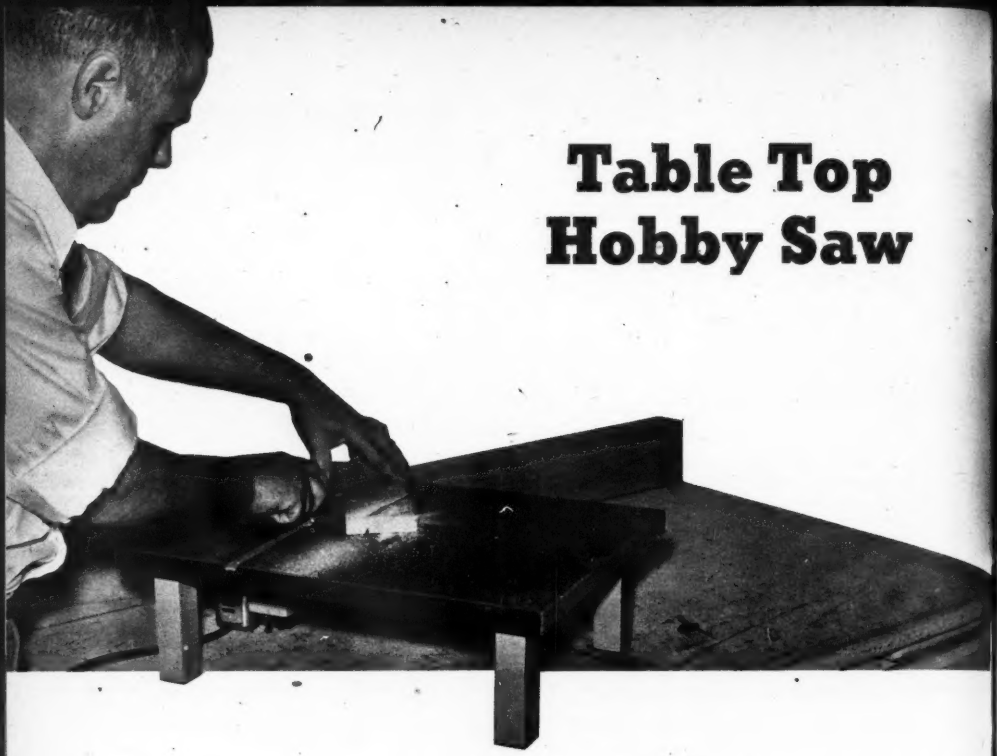


Table Top Hobby Saw

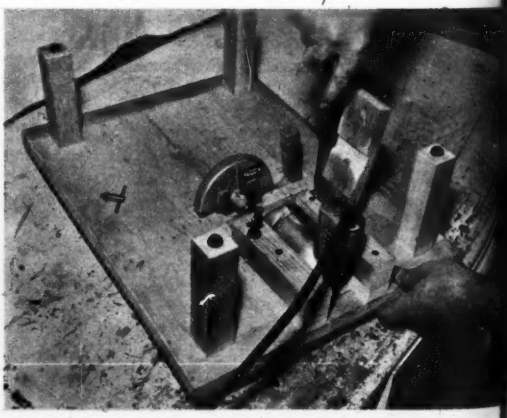
Convert your versatile quarter-inch drill into a practical table saw for light work. Here's how.

YOU modelmakers and other craftsmen who work with relatively thin lumber or plywood can make a table saw as versatile as many large units. It will rip, cross cut, bevel or miter.

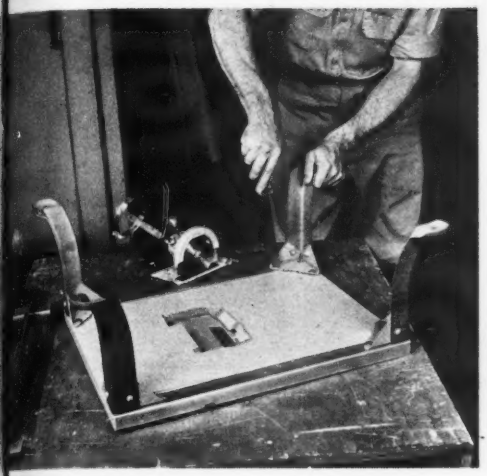
A right-angle drive circular saw attachment for the quarter-inch drill is the heart of the saw. This is assembled according to the directions furnished, attached to your drill, and adjusted until it runs smoothly.

Let's start by building the table to accommodate your right-angle drive attachment. A top ¾x16x21 in. is made by joining up several boards with glue and dowels. Lay out an opening for the attachment so that the saw blade will be approximately in the center and at a right

Rectangular recess is cut in the table for the right-angle drive method. Use a coping or keyhole saw, then smooth off the edges with a rasp.



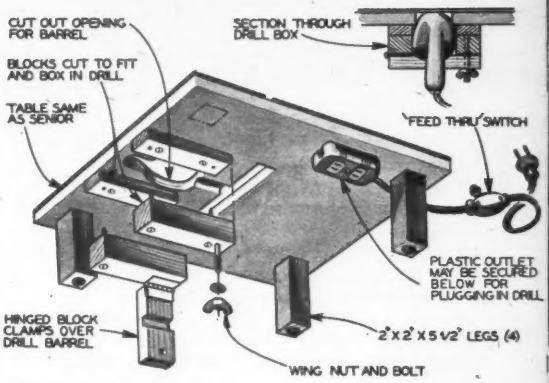
For the direct-drive method, the drill is cradled under the table, and the recess is shaped to produce a snug fit. Legs are shorter in this unit.



Left: Metal legs may be substituted for the 2x2-in. wooden ones (see text). Below: Ripping a piece of ¼-in. plywood. Fences are made from aluminum angle.

angle with the back edge. This area is then cut out with a coping or with a keyhole saw. The metal table of the attachment itself should be recessed so that its surface will be flush with the top of the board. This table is mounted permanently with flathead machine screws and nuts.

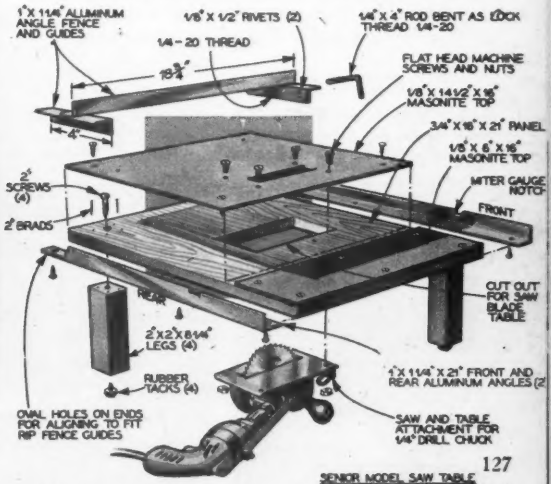
The Masonite top is made in two pieces, one 6x16 and the other 14½x16 in., each slightly oversize to allow for planing. Fasten to the wood top with countersunk flathead wood screws, leaving a ½-in. gap between each piece for the miter gauge. When planing, make sure that the back edge is perfectly aligned so that the rip fence will travel in straight. [*Continued on page* 182]



JUNIOR MODEL SAW TABLE

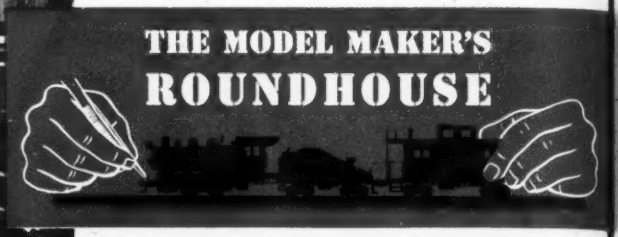
Sketch above is design for the direct-drive attachment; unit below pertains to right-angle accessory. Main difference is in drill suspension.

The Masonite top, cut in two sections, is attached with ¾-in. flathead wood screws. Miter gauge fits in space between boards.



SENIOR MODEL SAW TABLE

To lock up for the night, the rolling stock is removed and entire train layout is folded up against the wall. Shelf holds trains and loco.



No Room for a Layout?

By Doris & Bob Schloss

THAT'S what we thought! Our son John reached the tender age of six last Christmas. And having been brought up in an atmosphere of model trains he, naturally yearned for his very own layout. But, his room measured precisely 8x11 feet. What to do? Remove his bookcase or desk? Get rid of his bureau? Throw out the bed?

As you can readily see these steps were impractical. However, a child doesn't put the same value on things that a grownup will—he would gladly have slept on the floor in order to possess his own layout. So a thinking cap was put on in order to preserve the happiness of our young offspring.

At first glance, the only available space seemed to be the ceiling or the wall. We settled for the wall! The trains would not run up and down the wall but would open up on hinged platforms.

Because it would be impractical to use O or S gauge, because of size we chose American Flyer's HO gauge; the switches are A. C. Gilbert's because of the ease with which they may be removed without disturbing the wiring.

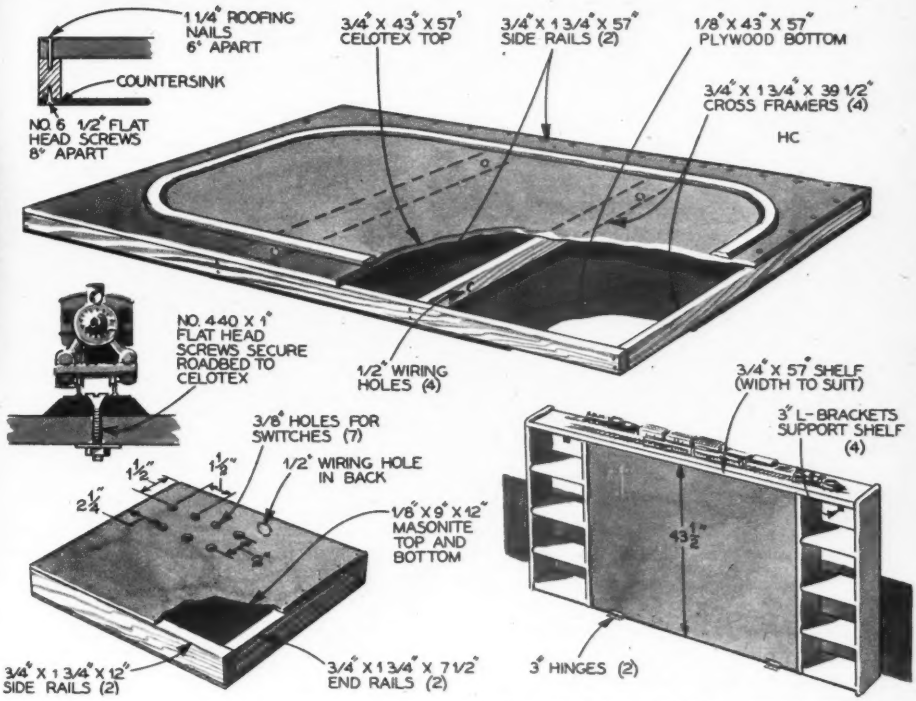
But, let's begin. First a frame was made 57x43 in. out of ¾x1¾ in. white pine, with two center supports 19 in. apart. Two ¼ in. holes in the sides of each center support pass the necessary wiring. Next attach ¾ in. Celotex to the finished frame size, with 1¼ in. roofing nails, six inches apart. Keep the smooth side up. Plywood was used for the bottom of the layout.

The control [*Continued on page* 183]

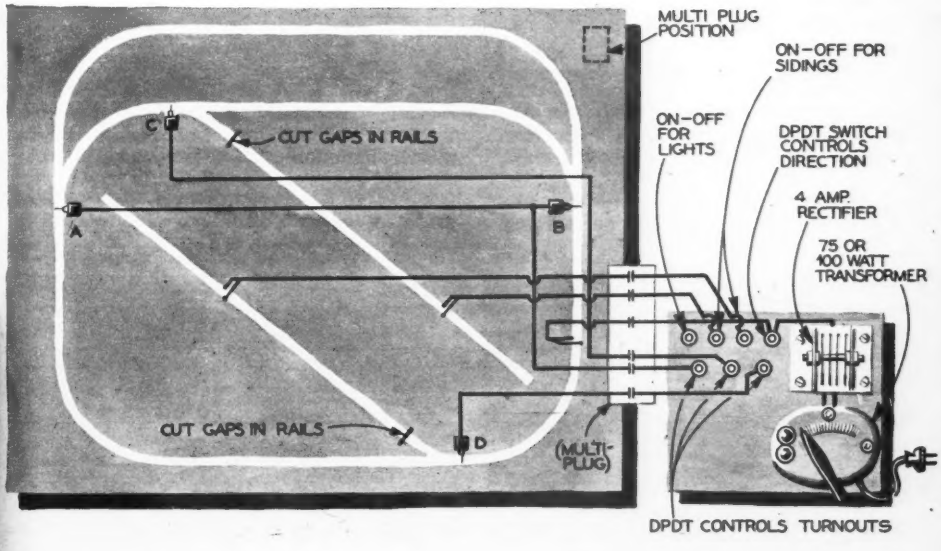
Junior takes a hand at a little road work. No more tangle of trains and tracks in living room.

Instead of squatting on floor, control panel can be readily lifted and placed on a table.

Control panel is made of Masonite and houses the switches for controlling spurs and accessories.



NEAT METHOD FOR FOLDING LAYOUT UNDER SHELF



Photos by Dan Rubin

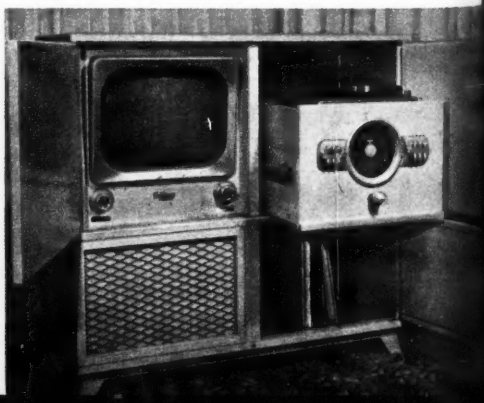
MI WORKBENCH AWARD WINNERS

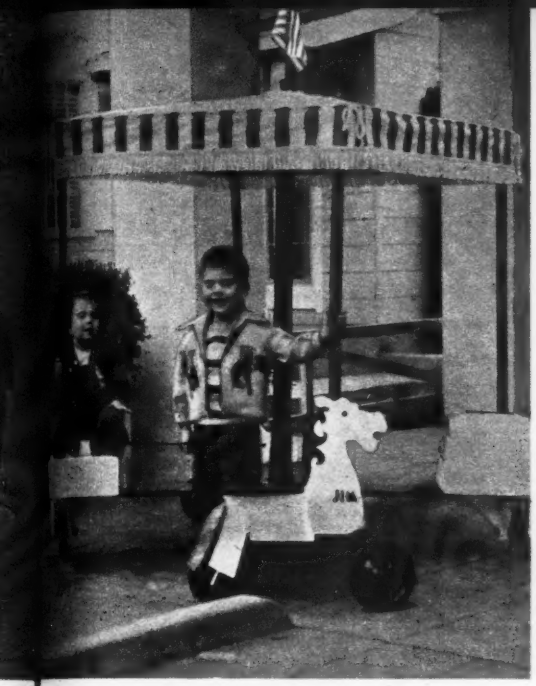
Each craftsman whose project is shown here receives a $5 check and a Workbench Award Certificate. How about sending us a photo and description of your latest project? If you aren't a winner, you may still receive a Certificate Of Merit. Photographs of your workshop are also eligible for an award. Send entries to MECHANIX ILLUSTRATED Workbench Awards, 67 West 44th Street, New York 36, New York.

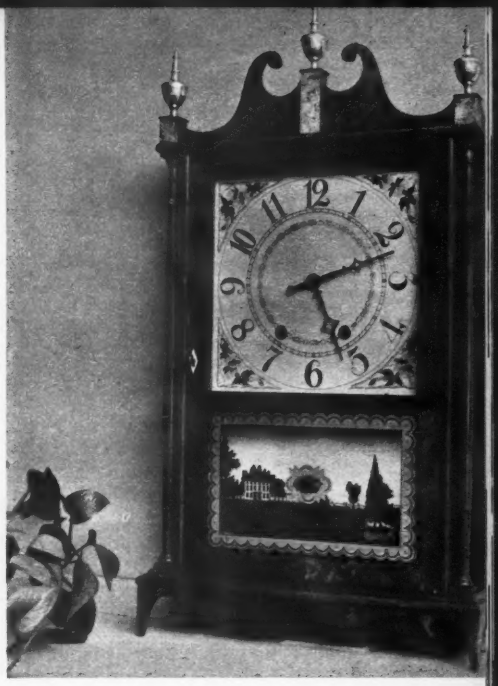
Snappy sports car built by Vincent Hunihan, New Haven, Conn., is powered by a 60-hp Ford engine from which fan was removed. Carburetor and air intake extend through the cowling. Car will make over 100 mph. Data supplied by John A. Cox.

Grass mower-snow blower. based on a commercial unit, was constructed in five weeks by Chuck Jacklin, Oak Park, Ill. Mower will easily cut grass over a foot high, while blower removes snow to 10 in. deep. Joints are welded.

Solid mahogany console houses the audio-video equipment of Robert Burmester, Richmond, Calif. Two speakers are enclosed in lower left compartment, which is covered with cloth and a decorative grille. TV set was originally a table model.







Tot-propelled merry-go-round consists of two horses, which are pedaled, and a pair of castered carts for non-working passengers. Designed by Mrs. H. W. Smiley, San Bernardino, Calif., rig is topped with an awning to provide a circus atmosphere.

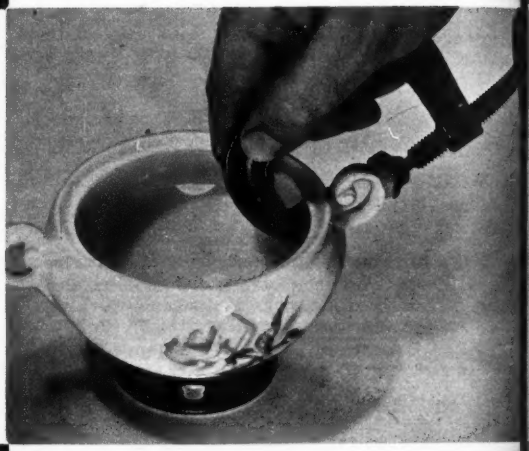
Craftsman William J. Nagel, Bethesda, Md., took pictures of the original Colonial clock, on which this copy is based, at Smithsonian Institute. He then enlarged his photos to actual size of the prototype and worked from photographic templates.

Six-hp tractor has tracks made of steel conveyor chain, and a Model A supplied the transmission and rear end. Overall length is 65 in., width 33 in. Builder Norman Coote of Dallas, Ore., spent about one year's time constructing this project.

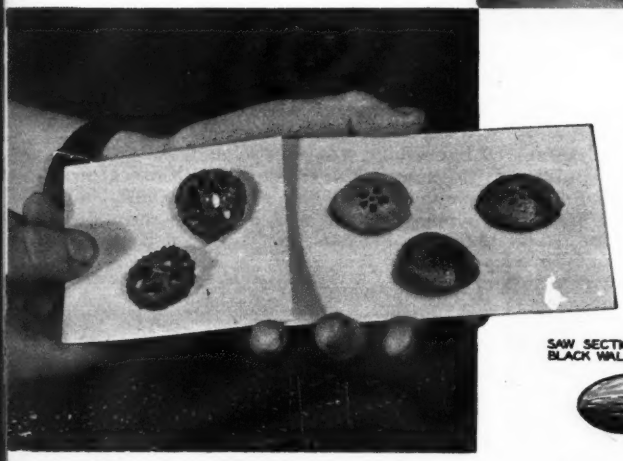
Model tug carved from solid pine is the work of Joseph Pereira, Brooklyn, N. Y. Everything was cut by hand, with the exception of the fittings, which were purchased at a hobby shop. The only tools employed were a set of knives and a drill.

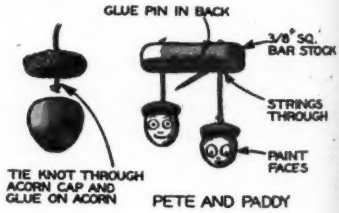
HOME AND HOBBY HINTS

Ever-ready clothespin holder can be made by knotting a short length of rope to your line. Hang pins as shown. Pushed ahead of you, holder keeps pins within easy reach.



Repair broken chinaware by using small pieces of cork to pad jaws of a small C-clamp. This rig will hold parts firmly until the adhesive dries.



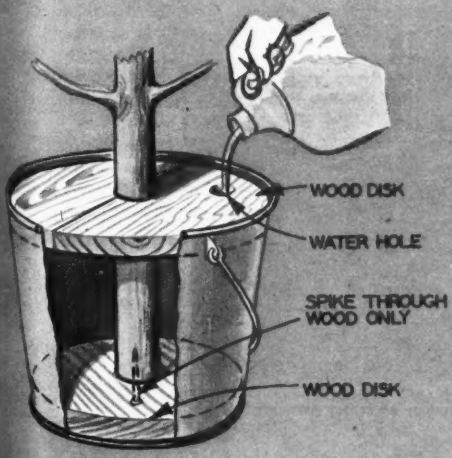


Pine cones, acorns, black walnuts, fruit pits, and many other similar items can be employed in fabricating unusual accessories. Several ideas to start you on your way are shown above and at right.

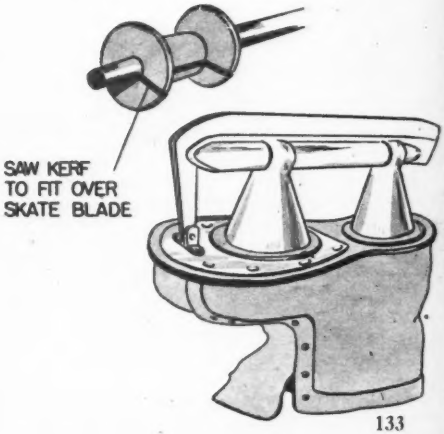
Sturdy stand for Xmas trees is built from scrap stock. Cut four pieces to required length, then assemble them, nailing into the tree as indicated at left.

Shatterproof watch crystal is easy to achieve. Coat both sides with a clear fingernail polish, which is invisible and will also prevent dangerous breakage.

Another Christmas tree base holds water to prevent needles from drying out. Cut two wooden disks to fit in a pail, then bore an extra hole in top disk.

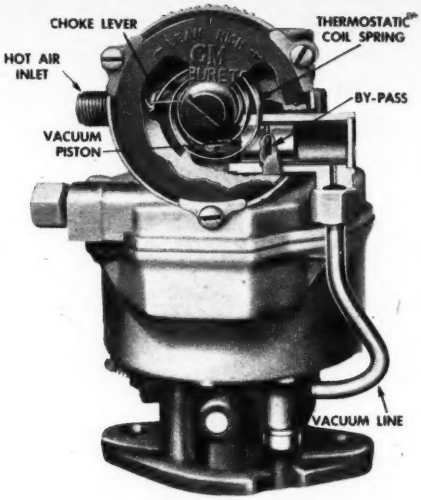


Skate sharpener is made from a large spool. After making saw cut slightly wider than the blades, insert a rat-tail file in bobbin hole, stroke over blade.



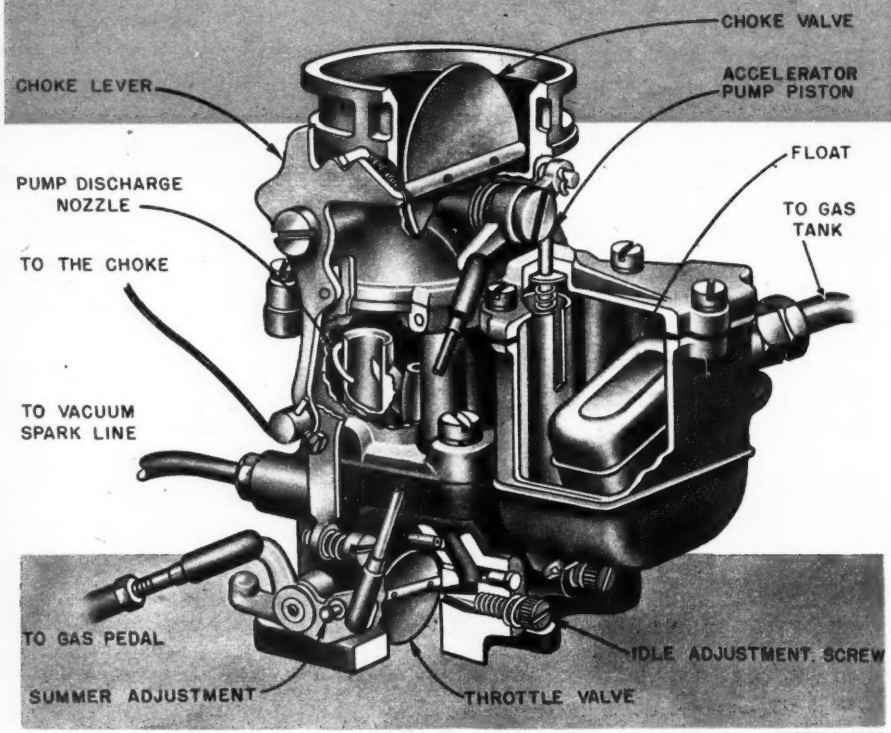
CARE WILL SAVE YOUR CAR

car care



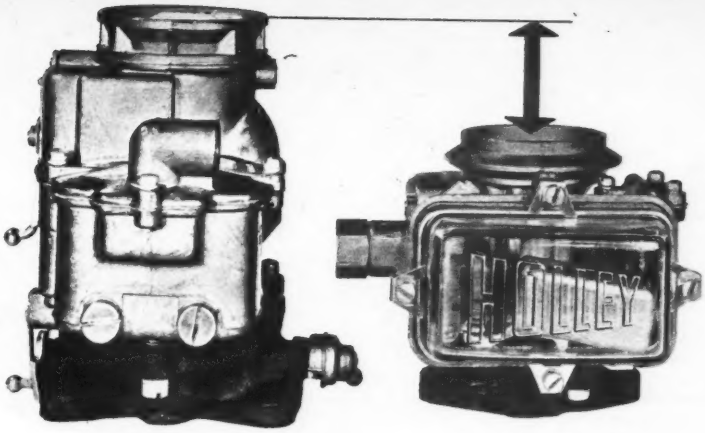
Automatic choke on Chevrolet has vacuum-operated control that overrules thermostat when more choking is needed for bursts of speed or less for downhill runs when engine is cold.

The Carburetor



HOFFSCHMIDT

A cutaway drawing of a modern carburetor showing principal parts.



Compact is the new word for carburetor. Note how much lower the new model at the right is in comparison with its bulkier predecessor.

Left: On new jobs, removal of one screw enables owner to take out complete float assembly. Right: Replaceable jets or metering units are the latest in carburetor convenience and efficiency.

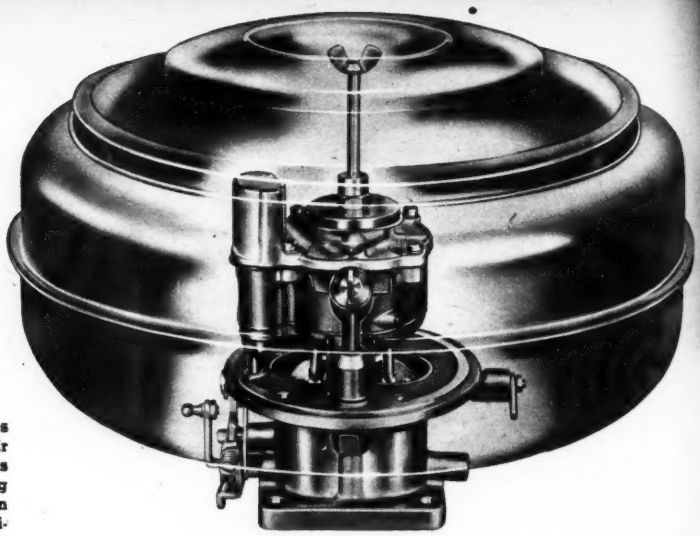
LIKE the mythical bird, which can fly in two directions at the same time, the current carburetor seems to have become strangely complicated and simplified at the same time. It is quite a new animal in the automotive menagerie and no one with a new car is likely to get full value from his inflated dollars unless he has something more than a casual acquaintance with the new species.

Here is a run-down on the new units which are an outgrowth of what was once an automotive adaptation of the simple atomizer. First we have the Rochester job which first came into service on the Cadillac and Oldsmobile. Next is the four barrel Stromberg on the Buick Roadmaster. Then we have the special Holleys on Ford 6, Mercury and Lincoln V-8's. And finally the new Carters on Nash Ambassador and the De Soto V-8. These introduce such novelties as visible floats, quick-change jet units, concentric design, integrally designed air cleaners, and side-draft carburetion. All new and as exciting as power steering or tubeless tires.

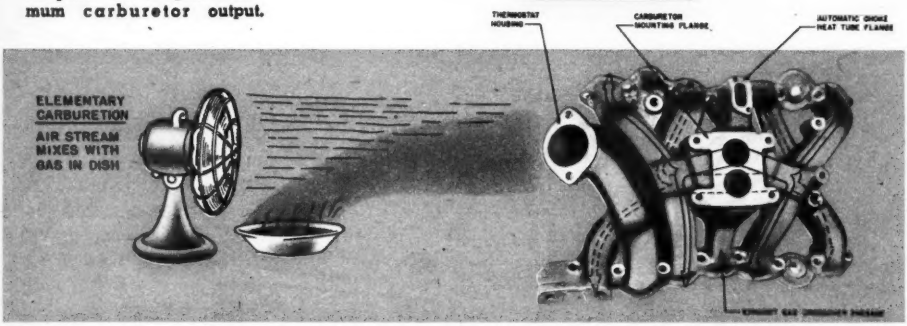
What the 1953 car owner will think about when he wants better performance probably will center around these new carburetion systems. One trend that is certain to come in for considerable acceleration is the combining of metering parts into a complete, easily replaceable assembly. Holley really goes modern by combining this with use of an inexpensive glass bowl so that the car owner or his mechanic can make an immediate spot check of the behavior of the float, which is always the first step in carburetor servicing. If metering isn't satisfactory for the particular car or the way it is functioning, out comes the metering unit and in goes a replacement.

Servicing of Holley carburetors breaks down into four steps. If examination of the

By Frederick C. Russell



Holley carburetor nestles in center of pancake air cleaner. Photo below shows how smooth, gently sloping manifolding is used on Chrysler V-8 to gain maximum carburetor output.



float shows that its mechanism isn't working properly the glass bowl is removed by taking out four screws. Removal of one more screw permits taking out the complete float unit. Step No. 3, by removal of five screws, permits taking out the complete metering unit. Next step, No. 4, covers replacement of worn parts and reassembly.

Catching up with carburetors must include the introduction of side-draft as seen on the Carter job which first appeared on the Nash Ambassador. Not so long ago all carburetors were up-draft. Engineers had overlooked the fact that while most gases rise, the gas of gasoline falls. Thus they were bucking nature by making the pistons lift the gas vapor (technically atmospheric pressure did the job), and as any hot-rodder knows today this just wasn't sensible design where volumetric efficiency (Greek for packing more gas into the cylinders) is the aim. Discovering this early faux pas the engineers quickly rushed to down-draft carburetion which has been reasonably successful, but which has presented the problem of greater risk of flooding the manifold with raw gasoline. So why not a compromise in the way of side-draft carburetion—feeding fuel to the manifold at manifold level?

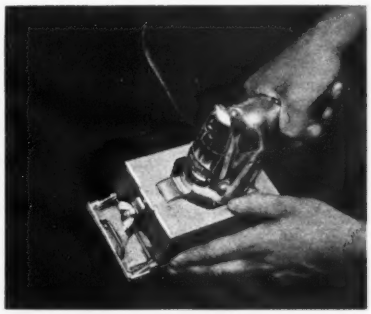
In this Carter YH job (similar to the YT) the circuits such as idle, main fuel, power and acceleration systems are so arranged that they operate with the carburetor in the horizontal position. A point in connection with adjusting the float is that the setting must be checked with the bowl held at eye height and while it is in a strictly level position. Note also that the acceleration pump jet should not be removed as it has a permanent installation. If lean rods are put into the carburetor, or the job is reassembled, the metering rod adjustment always should be checked over.

Holley's Centri-Flo on the Lincoln has a vacuum spark control which is fitted into the base of the carburetor. Distributor advance is controlled during getaway. The result of this is that there is spark advance as the engine catches up with the actual throttle opening. [*Continued on page* 154]

NEW for the SHOP

Tester for locating shorts and open circuits in electrical apparatus as well as household appliances has self-contained 90-volt battery and built-in neon light. Howard Sales, Brooklyn, N. Y.

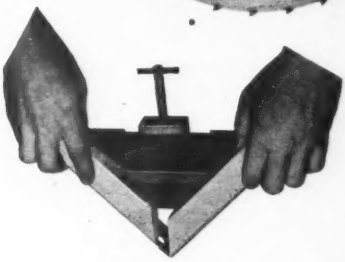
Blow torch made by Otto Bernz Co. of Rochester, N. Y., uses a cylinder of liquified petroleum gas that will burn up to 15 hours. Fuel cylinder, when empty is thrown away; replacement is $1.95.



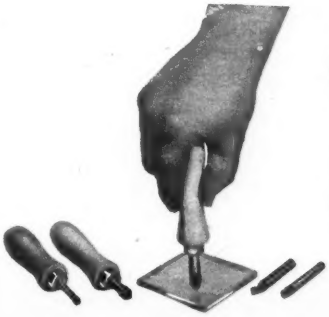
Du-Fast, oscillating sander and polisher, attaches to quarter-inch drill. Has 3½x7 in. working surface. Du-Fast, Inc., N. Y. C.

Newest saw blade to hit market is disposable. Has heat-treated teeth; made up to 16 in. sizes; Heineman Saw Co., Canton, O.

One piece, unbreakable hammer forged of tool steel, is especially packaged in a gift box for Christmas presentation. Estwing Co., Rockford, Ill.



Corner-Clamp is a miter vise for setting mortise and tenon joints as well as for making screens or picture frames. Belruss Co., Manchester, Conn.



Carbide-tipped hand drill can be detached from handle for use in drill press. Made in sizes from ⅛th in. to 1 in. by Smith Co., Glen Ridge, N. J.

Mixbit, a splashless stirring device with a quarter-inch shaft, can be used with electric drill or drill press for mixing paint. Park Mfg. Co., Grant Park, Ill.

A Good Tool
Always Makes A Good Gift

Build SPORTSTER

Length: 12 ft. 6 in. Weight: About 250 lbs. Depth: 22 in.
Beam: 4 ft. 9 in. Speed: 20 to 34 mph with 10 to 33-hp motor.

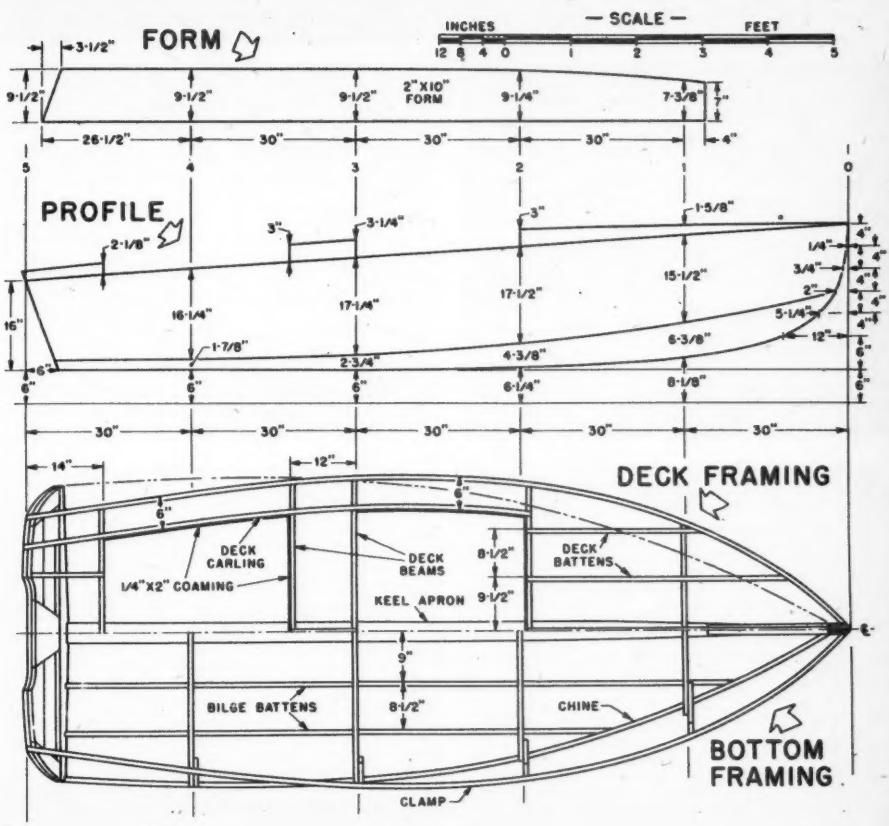
ESPECIALLY designed for plywood fabrication, Sportster is fast and safe, giving her best performance with outboard motors developing from 10 to 33 hp. With a 10-hp motor, she will do 20 mph; with 15 hp, 24 mph; with 25 hp, 30 mph; and with 33 hp, 34 mph. She can be built with a single open cockpit or with two cockpits as indicated.

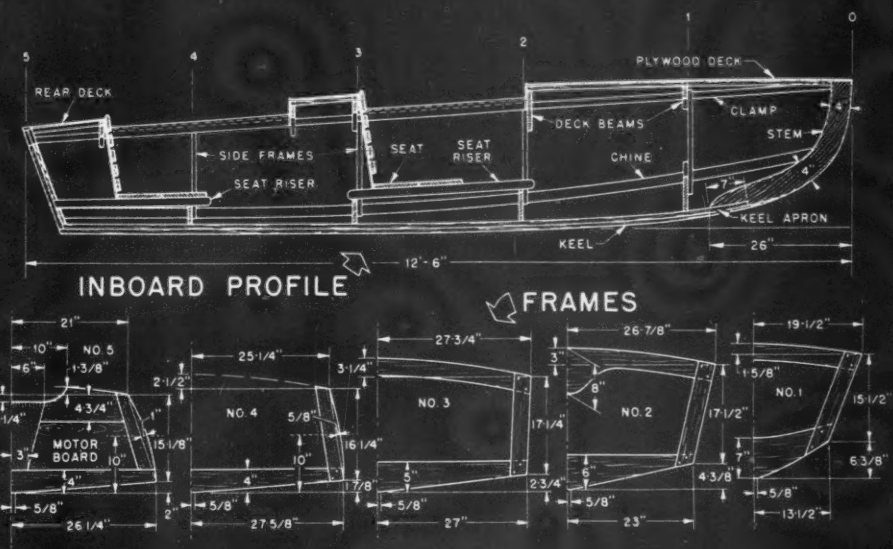
To start the construction, saw to shape the form upon which the boat is built and mount it on sawhorse-like legs at a convenient working height. Notch this form to take the frames.

Draw full-size paper patterns of the stem and frames. Lay the material for each frame upon its pattern and assemble, fastening each joint with resin glue and two 1½-in. screws. Lay the transom out similarly and secure the ¾-in. plywood to the framing and motor board with 1¼-in. screws.

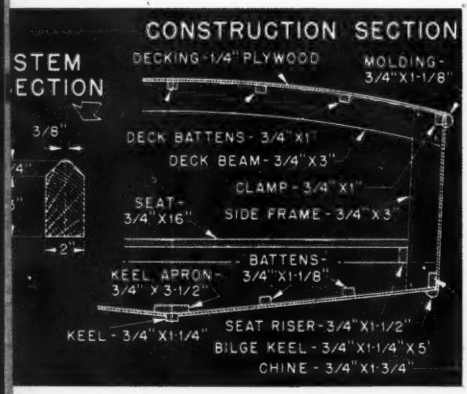
Using the proper full-size pattern, lay out the stem and saw it to shape. Follow by trimming and beveling the edges as indicated. Cut notches for the keel, chines, and clamps in all frames and put the frames and stem in place upon the form. Attach the keel apron in the frame notches and taper it forward to meet the stem. Secure each joint with two 2-in. screws.

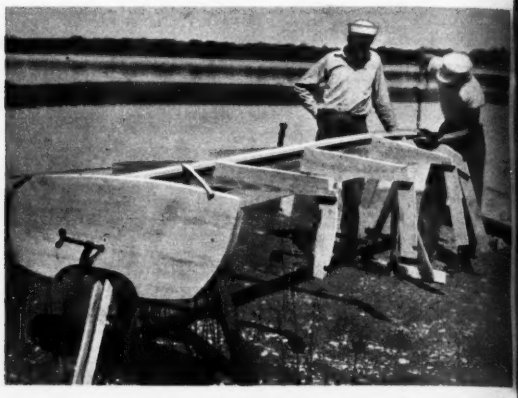
Fit the chines in the frame notches, springing and clamping them simultaneously and working from the transom forward. Fasten at each joint with one 2-in. screw. Bevel the ends of the chines to fit the stem and fasten with two 1½-in. screws on each side. Attach the clamps to the

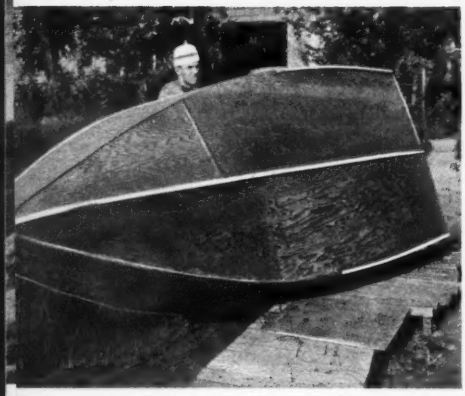

FORM
— SCALE —
INCHES
FEET
2"X10" FORM
PROFILE
DECK FRAMING
DECK CARLING
DECK BEAMS
DECK BATTENS
1/4"X2" COAMING
KEEL APRON
BILGE BATTENS
CHINE
CLAMP
BOTTOM FRAMING


REAR DECK
PLYWOOD DECK
DECK BEAMS
CLAMP
STEM
SIDE FRAMES
SEAT
SEAT RISER
CHINE
KEEL APRON
KEEL
INBOARD PROFILE
FRAMES
MOTOR BOARD
NO. 5
NO. 4
NO. 3
NO. 2
NO. 1

Drawing at left gives section through the boat. Photo below shows frames assembled on the form.







Exposed edges of planking at stem are covered by a screw-fastened white-oak outer stem piece.

Deck framing if two cockpits are desired. For a one-cockpit job, center decking is left off.

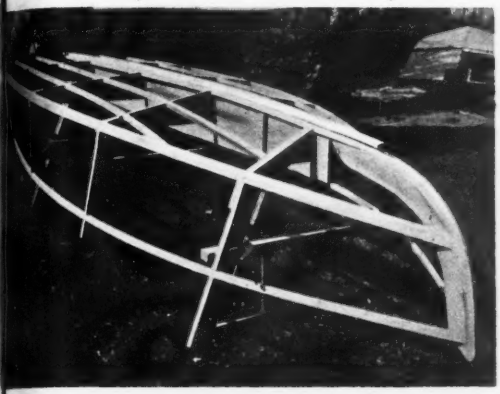
notches in the frames, beveling the ends to fit the stem and fastening with one 1½-in. screw at each point.

Lay the keel in position on the keel apron and mark along each edge. Bevel the apron to correspond with the V of the bottom. Fasten the keel to the apron with 1½-in. screws spaced about 6 in. apart. Complete the framing by notching for the bilge battens (two each side of the keel) and fastening them in place with 1½-in. screws.

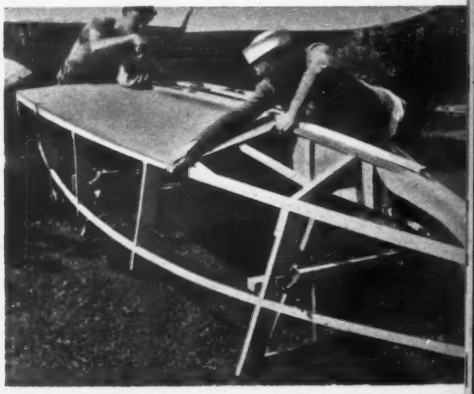
The framework now has the shape of a boat. See that everything is properly aligned and add braces as required from the shop floor to the frames to insure maintaining a rigid structure upon which to work. Next, trim and fair the framework so the planking will lie evenly at all points.

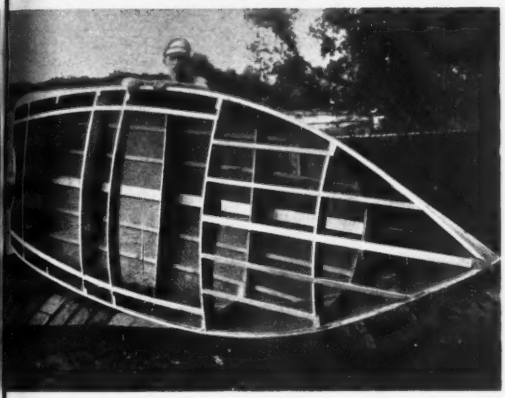
The process of planking the hull will depend upon the length of plywood used. If 12-ft. lengths are not available, 8-ft. pieces with butt straps to back the joints are satisfactory. Lay the plywood in position on the bottom of the hull, mark, and cut to shape. Coat all surfaces of the framework that will touch the plywood with liquid marine glue and lay muslin strips on the coated area. Coat again with glue and lay the planking in position. Secure it to the bilge battens with shingle nails, clinching them on the inside of the hull. Fasten elsewhere with 1-in. No. 8 screws spaced about 2 in. apart. Be sure to bore lead holes for all fastenings. If short plywood is used, install ¾x3-in. butt straps between the bilge battens and screw the planking to them. The forward ends of the bottom ply-

Entire framework completed. Keel is in place but has not yet been trimmed at the forward end.

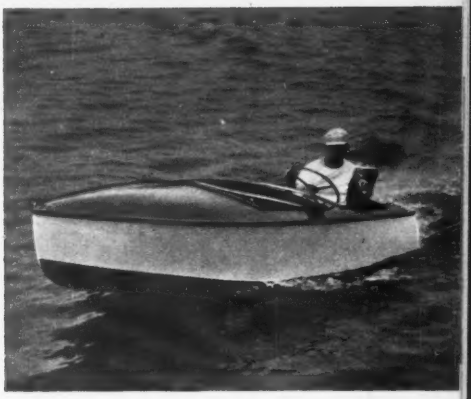


Putting bottom planking on. If short plywood panels are used, the forward sheets go on last.





Forward view of the interior structure and deck framing. Let stringers and carlings into beams.



Sportster has spray-free cockpit and efficient planing angle. Hull is clean-riding and fast.

wood may require softening with hot water to render them flexible.

Similarly install the plywood side planking. Butt blocks if required here should extend from chine to sheer clamp. Cover the exposed edges of the planking along the stem with a ½x1¼-in. outer stem. Soften it in hot water, bend it in place, and secure it with 1-in. screws.

Bilge keels are shown and were installed by the original builder in the belief that they caused most of the spray to remain under the boat and contribute to the lift. They may be omitted if desired.

Turn the hull right-side up and remove it from the form. Install the deck beams and secure them with 1½-in. screws. Those at the forward and after ends of the after cockpit are attached to ¾x1¾-in. supports, which are in turn secured to the sheer clamps and chines.

Set the carlings in notches in the beams and fasten them with 1½-in. screws. Similarly install the five deck battens.

For the most attractive deck, use mahogany plywood and finish it with varnish. Clamp the panels in position on the deck with seams down [*Continued on page* 181]

LARGE-SCALE PLANS

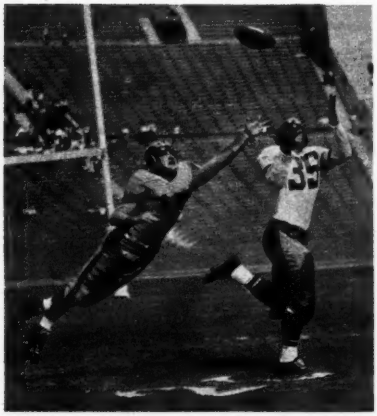
will greatly simplify construction. Send $1.00 to MECHANIX ILLUSTRATED Plans Service, Fawcett Building, Greenwich, Conn. Please specify Plan No. 978.

MONTHLY

PHOTO CONTEST

1st Prize ($10.00) .....Morning Study
Taken by Flip Schulke of Minnesota with a 4x5 Graphic at 1/100th and f-5.6; Triple S Pan.

Please put your name, address and picture-taking data on back of each print. Wrap with cardboard stiffeners and enclose a self-addressed stamped envelope or postage for return of unused photos. Prize-winning pictures are not returned. Judges are MI Editors. Duplicate prizes awarded in case of tie. Please address your entries to: Photo Contest, *Mechanix Illustrated*, 67 W. 44th St., N.Y.C. 36

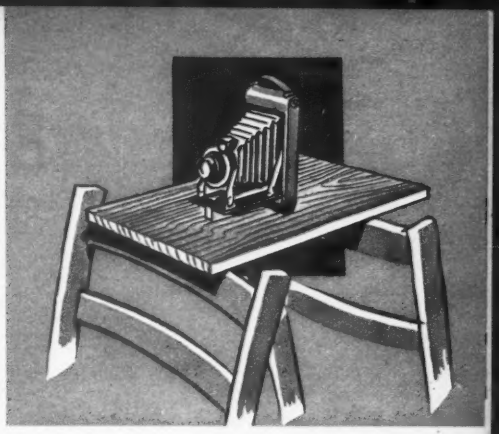


$5.00 Award .....Interference
A good action shot of forward pass. Man at left broke up play. Exposed at 1/500th; f-8.

$5.00 Award .....Soupy Weather
Jerry Muller of Lindenhurst, N. Y., used a 2¼x3¼ roll film camera for this shot; 1/10th at f-4.5.

$5.00 Award .....I Like It Messy
Captured with a Rollei at 1/50th and f-4. Printed on No. 2 Kodabromide paper; Dektol developer.

An emergency retouching stand can be quickly made if your camera is equipped with the new Graflok back. Remove the shade and use it as a support for the ground glass. White paper, lamp complete stand.

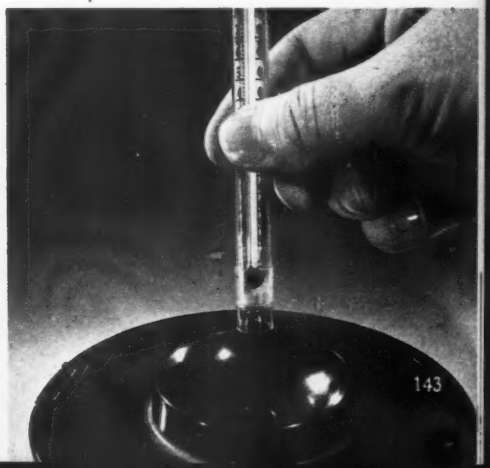


Two chairs and a board make a good camera support. Not as handy as a tripod of course, but an interesting wrinkle to know if you're ever stuck away from home without a tripod and need a rig for a time exposure.

PHOTO KINKS

A fluted background for portrait studies can be easily achieved by aiming a spotlight through the spokes of the back of a chair. Vary the distance to yield different effects.

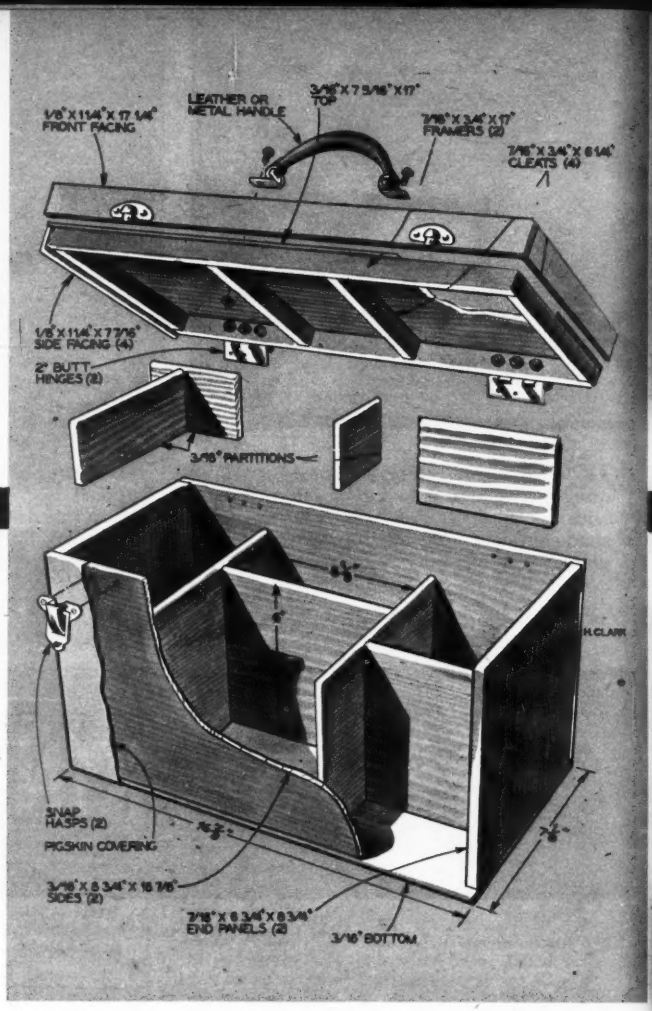
By slipping a piece of notched plastic tubing over the end of a stirring rod thermometer, you can agitate film and take its temperature at same time during development.



custom camera case

This sturdy case, with plenty of room for accessories, will add years to the life of your camera and equipment.

By Clarence A. Martin

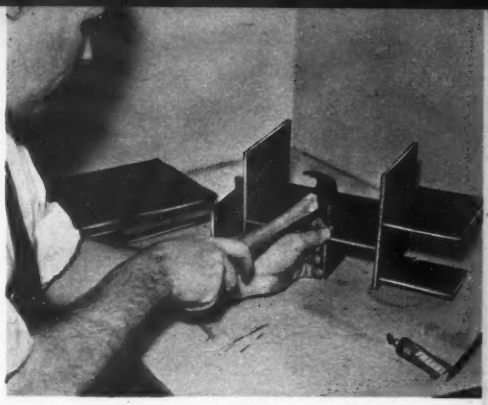


A well-built camera case is expensive. Not only that, it is seldom possible to purchase one that will exactly meet individual requirements. The solution is to design and construct your own. A custom built case has no waste space but will still carry all your necessary gear. The case described is made of Philippine mahogany, it is felt lined and is covered with pigskin leather. Top grade materials can be purchased for less than $10.

The first step is to list everything that will be carried. Each of these items should then be measured accurately and drawn to scale. Cut them out and shift them about to get the best possible "floor plan." Remember, allowance must be made for both the thickness of the felt and the leather.

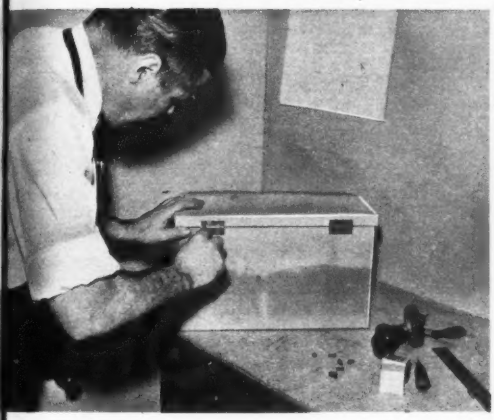
The camera case described, was built to hold a 4x5 Graphic, flashgun, a roll film adapter, a film pack adapter, 16 flash bulbs, 4 film packs, 4 rolls of No. 120 film, lens hood, filters, lens tissue, and a light meter. There is still room available for those miscellaneous items that [*Continued on page* 191]

Make a list of the items you'll want to carry in the case and make a scale cutout of each. Shift them around to get a suitable "floor plan."

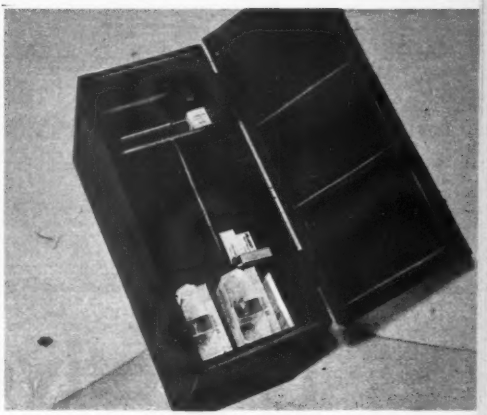


After the plywood pieces for the partitions have been cut to size, they are accurately positioned and fastened together with brads and glue.

Use bolts, instead of screws, to fasten the two hinges. If you prefer, a 16 in. piano hinge can be used instead of the two hinges shown in photo.



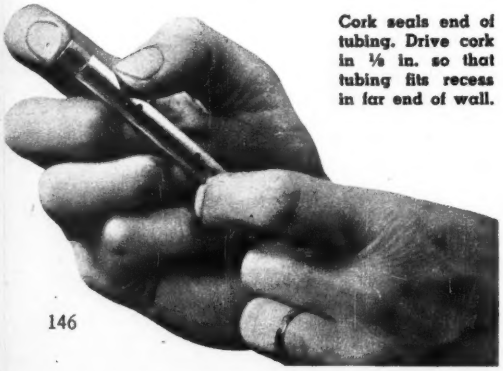
The complete case. The lid section can be used to store small accessories such as filters, data books and lens tissue. Paste your name, address on lid.



Picture below shows the camera and the accessories which the case holds. It is much more compact than commercial cases holding similar photo material.

Negative Washer

A good film washer is a prime necessity in a well-equipped darkroom. Build this one out of a storage battery case.



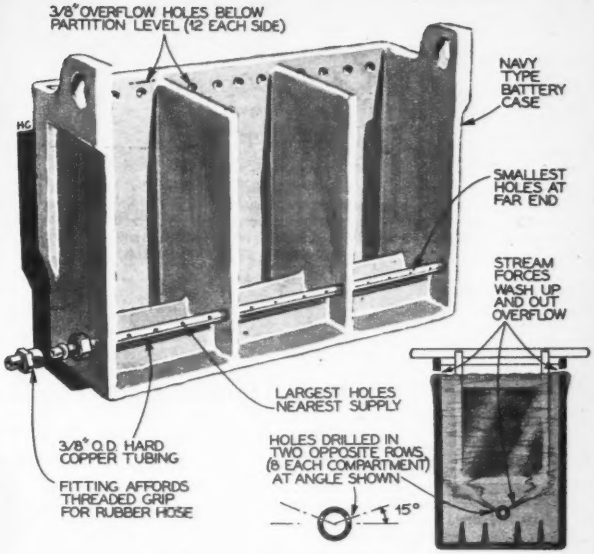
Cork seals end of tubing. Drive cork in ⅛ in. so that tubing fits recess in far end of wall.

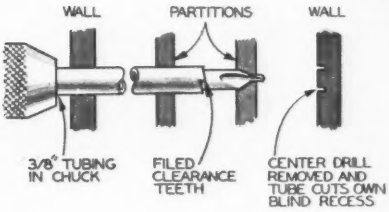
THIS easily made negative washer will prove a welcome piece of equipment in your darkroom. It efficiently washes cut film in hangers and roll film in reels. A war surplus Navy type battery case was used although any battery case that will accommodate your hangers will do. This washer takes up to 4x5 hangers easily. The only other materials necessary are a piece of ⅜ in. O.D. hard copper tubing, a ⅜ in. ferrule type fitting and the rubber hose to connect the washer to the faucet.

The holes drilled in the tubing at the bottom of the washer must be larger toward the water supply if all compartments are to have the same rate of water change as the other. In drilling the overflow holes at the top don't get too close

Center line of 3/8 in. hole must be above ribbing in bottom of the case.

Tubing is pushed into place, drawn out ½ in. and sealed with waterproof cement.





Type of drill used to cut partitions and blind recess.

to the edge. Also make sure that the holes are *below* the top of the partitions so water cannot flow over the top into another cell and cause possible contamination. The holes should be equally spaced from the outside bottom of the tank so that the overflow will drain through all the holes. If you find it necessary to cement the tubing in the case, waterproof linoleum cement will serve. It should be applied with the tubing pulled out about a half-inch, then as soon as each joint is coated it can be pushed into place, the excess removed and the joints allowed to harden. The washer is completed by the addition of a rubber tube with a fitting on the end to fit the cold water tap. If you have slats in your darkroom sink make sure the surface on which the washer rests is level so the water will flow freely from all of the overflow holes.

When in use the film hangers should be separated slightly to allow good circulation of water and a fast thorough wash. Roll film can be washed by removing the loaded reel from the tank and lowering it into one of the compartments.

Tests with the Defender Washrite formula indicated that 15 minutes is sufficient washing for six 4x5 sheets of cut film to a cell with a moderate flow of water at 68°. Acid fix with hardener was used and the negatives fixed for ten minutes. While no check has been made on the time required to remove the hypo from roll film, a slightly longer time would no doubt be necessary because of the tendency of the reel to interfere with the flow of water to some extent. This washer also works satisfactorily with film pack negatives. However, when washing pack films, films should be divided and placed in all three compartments, rather than all in one cell.

You should be able to pick up a surplus Navy type battery case from any company dealing with war surplus items. Many larger photo supply stores in metropolitan areas keep them in stock. Another source is a local ignition and battery dealer. •

By Clyde L. Allison

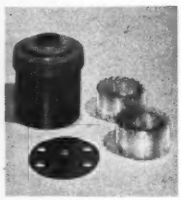
Easy-to-use materials for printing pictures—ideally suited for beginners. **Kodacraft Printing Kit, $4.95.**

Basic essentials for developing and printing pictures, including roll-film tank. **Kodacraft Photo-Lab Outfit, $8.75.**

Complete developing, printing equipment, incl. metal printer. **Kodacraft Advanced Photo-Lab, $14.10.**

For efficient print drying. Counteracts tendency of prints to curl. Use it over and over. **Kodak Blotter Roll, $2.88.**

Easy to use, load, and pour. Takes 620-120, 616-116, and 127 roll films. **Kodacraft Roll-Film Tank, $2.53.**



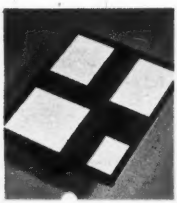
For simultaneous development of two rolls of 828 or 135 film. **Kodacraft Miniature Roll-Film Tank, $2.53.**

Save time—Shop here

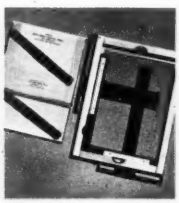
for the photo fans on your Christmas list

These two pages give you some idea of the many useful and inexpensive gift ideas at your photo dealer's. Visit him soon. He'll be glad to help you choose just the right gift for every photo fan on your shopping list.

Permits loading and processing of 35mm. films to be carried out in daylight. **Kodak Day-Load Tank, $9.30.**



New-type printing frame of steel construction. Includes a set of masks. **Kodacraft Printing Frame, $1.29.**



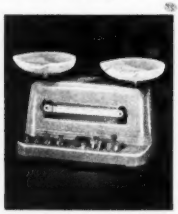
Adjustable—accepts all sizes of negatives up to 4 x 5½ inches. **Kodak Auto-Mask Printing Frame, $2.79.**

Converts ordinary tray to efficient, trouble-free washer for prints or films. **Kodak Automatic Tray Siphon, $4.50.**

Frees both hands for handling equipment and material in the darkroom. **Kodak Utility Footswitch, $10.00.**

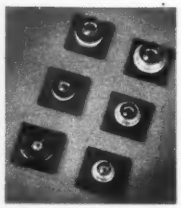
Tilting base, minute and split-second hands, large dial. Covers intervals to 60 minutes. **Kodak Timer, $7.20.**

Gives precise timing in contact and projection printing, 1 to 57 seconds. **Kodak Electric Time Control, $13.50.**

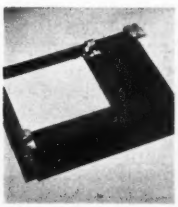


Handsome chemical-resistant plastic housing protects all working parts. **Kodak Chemical Scales, $9.90.**

Cool, Circline fluorescent lamp, integrating-sphere lamphouse are prominent features in each enlarger. **Kodak Hobbyist Enlarger** *(left)*, **$44.00,** complete with f/6.3 lens. **Versatile Kodak Flurolite Enlarger** *(right)*, **$99.50,** without lens.



Lenses for the Flurolite Enlarger range from 50mm. f/4.5 "Ektanon" to 4-inch f/4.5 "Ektar." From $14.00.

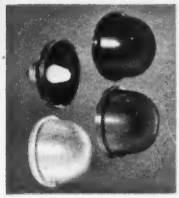


For accurate masking of enlargements—use it with any vertical enlarger. **Kodak Masking Easel, 11 x 14, $9.60.**

For determining correct printing time—saves both paper and time. **Kodak Projection Print Scale, $1.15.**

Feature-packed view-type camera—permits one-to-one close-ups. **Kodak Flurolite Camera Combination, $60.00.**

Permits use of 35mm. film with Flurolite Enlarger or Recomar-type cameras. **Kodak 35mm. Film Adapter A, $45.00.**



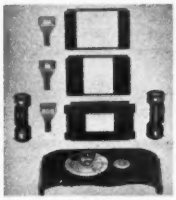
Includes three cups for darkroom work with both papers and films. **Brownie Darkroom Lamp Kit, $1.75.**

New darkroom safelight that provides direct or indirect illumination—or both. **Kodak 2-Way Safelamp, $4.50.**

Can be used either from a drop cord or in a wall plug. Includes safelight filter. **Kodak Darkroom Lamp, $4.70.**

Attaches to wall, shelf, bench. Includes switch, cord, safelight filter. **Kodak Adjustable Safelight Lamp, $7.40.**

Expertly made, offers sound protection together with smart appearance. **Kodak carrying case. From $2.65.**



Adapts de luxe model Kodak Tourist Cameras to take Kodachrome Film. **Kodak Tourist Adapter Kit, $13.25.**

Permits use of economical Bantam-size (828) color films. **Kodak 828 Adapter for Kodak Reflex Cameras, $4.59.**

Automatically trips shutter, permits photographer to get into picture. **Kodak Auto-Release, $3.86.**

Provides dependable "flash" for most internally synchronized cameras. **Kodak Standard Flasholder, $8.25.**

Sensational new battery-condenser flash system. **Kodak Ektalux Flasholder (Standard Bracket), $29.75.**

Condenser-type power for dependable "flash." **Kodak B-C Flashpack, $2.95 (without 22½-volt battery).**

Twelve-inch reflector focuses readily from wide to narrow light beam. **Kodak Vari-Beam Clamplight, $10.50.**

Permits close-range picture taking with most fixed-focus cameras. **Kodak Close-up Attachment, $1.63.**

Now a filter designed for inexpensive box cameras—emphasizes clouds. **Kodak Cloud Filter, $1.72.**

Provides an excellent means of darkening the sky and clouds in color pictures. **Kodak Pola-Screen, $6.75.**

Shades the camera lens and reduces sky flare—attaches directly to adapter ring. **Kodak Lens Hood. From $1.65.**

Popular yellow (K2), red (A), and green (X1) filters to fit most cameras. **Kodak Wratten Filters. From $1.65.**

Two compartments hold 4 filters, adapter ring, lens hood. **Kodak Combination Filter Cases, $4.25, $4.95.**

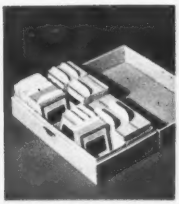
New-type slide-feeding mechanism, cool operation, elevating device. **Kodaslide Merit Projector, $26.10.**

2 x 2 projector and screen in a single unit. Usable in fully lighted room. **Kodaslide Table Viewer, 4X, $49.50.**

Projector, screen, slide changer in one unit. **Kodaslide Table Viewer, Model A, $97.50.**

Compartments for 240 cardboard or 96 glass slides. **Kodaslide Compartment File, $3.94.**

Protects 140 cardboard or 55 glass slides—keeps them organized. **Kodaslide File Box, $1.57.**



Holds 360 2 x 2-inch or 160 stereo slides. **Kodaslide Flexo File, $1.25.**

Prices subject to change without notice and include Federal Tax where applicable. Consult your dealer.

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Kodak
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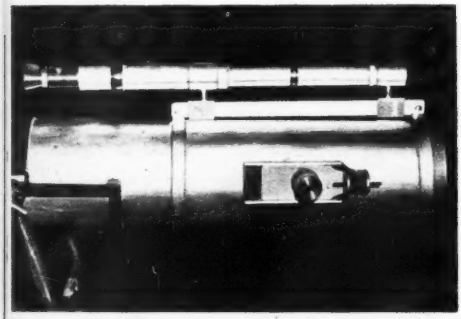
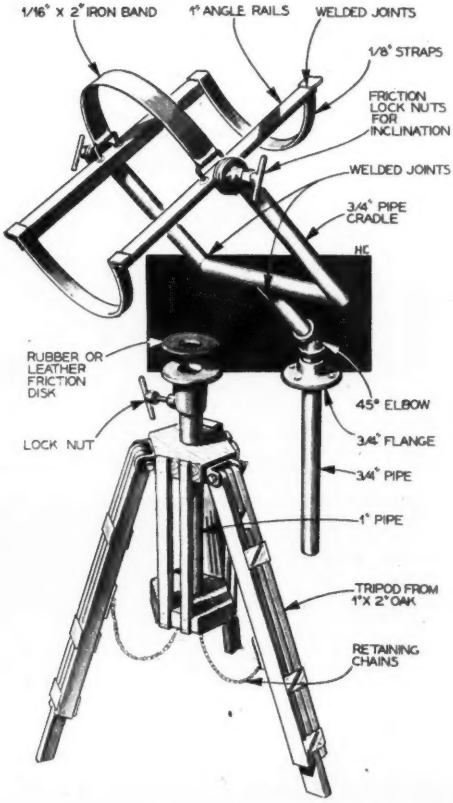
The Amateur Telescope Maker's Page

Still putting off building your telescope? Then let this fine instrument, built by a man with no previous experience in mirror-making, inspire you.

SEVERAL years ago I became interested in astronomy as a hobby. Like most hobbies, astronomy may become mighty expensive unless you do a lot of the work yourself instead of always getting store-bought materials. The novice can make a telescope with ample power for good observation without expending more than $25 to $50 for materials. The satisfaction gained from viewing the heavens through the results of your own handiwork is well worth the time and [*Continued on page* 190]



Finder and eyepiece adapter detail. As can be seen from drawing of tripod, instrument was designed with portability in mind. Telescope can be shifted in yoke for best viewing position.



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ON A REMODELING JOB LIKE THIS

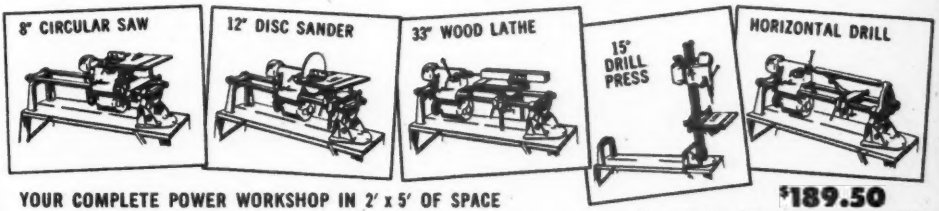
Photograph by the makers of Armstrong Asphalt Tile

Take a closer look at this attractive basement shop. Notice the fine workmanship . . . the beautifully fitted drawers and doors . . . the accurately mitered shelf joints . . . the expertly paneled walls.

Notice the SHOPSMITH, too! For this is the versatile power tool that makes it possible for *you* to do remodeling jobs like this! SHOPSMITH'S high precision accuracy and its simplicity of operation make it easy to turn out work of exceptional quality. And, in addition to the fun of doing it yourself, you can save $200-$350 on a project such as this—more than enough to pay for your SHOPSMITH.

You can do more jobs with SHOPSMITH—in less space—than with any setup of individual tools. Furthermore, in each of its five basic positions, SHOPSMITH exceeds most individual tools in accuracy, capacity, quality!

To prove all this to your own satisfaction, just see SHOPSMITH demonstrated and *compare* —at leading hardware and department stores or any Montgomery Ward store!



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Lazy Susan

[*Continued from page* 103]

Discarded automobile ball bearings work well on this project. Garages gladly give them away. Although no longer useful in cars, these bearings, if not too badly worn, will work excellently in your lazy susan.

First I jointed and glued the turning stock for the base of the lazy susan. This included several pieces of ¾-in. stock glued together to form a section about 7 in. square. A 2-in.-diameter piece of ¾-in. stock for the ball-bearing shaft was glued in the center of the base section. Next I jointed and glued the stock for the bottom part for the tray unit; this consisted of several pieces glued together to form a ¾x16x16-in. flat base.

In order to provide sufficient turning stock where the rim of the tray unit curves upward, six ¾x3½x8⅞-in. pieces were used. All are mitered at 60°. Before gluing these pieces, I sawed the inside arcs on them to facilitate turning. Pinch dogs are excellent for holding the mitred joints until the glue sets. After the entire tray unit was glued together, the outside arcs of these pieces were cut simultaneously with the diameter of the tray base.

A 5-in.-diameter piece of ¾-in. stock was glued in the center of the tray unit. This provided material for turning the central rim and cavity on the top side of the tray unit.

Because the base section and the tray unit were fastened to face plates, only scraping and cut-off tools were used. These include the round nose, square nose, and the diamond point. First the base section was turned. After the general contour was roughed out, I turned the bearing shaft to fit the auto bearing.

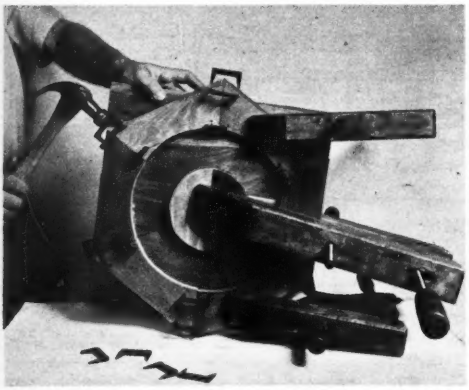
There should be a light press-fit between the bearing shaft and the bearing. If the fit is too tight, the bearing will not run smoothly. Likewise, a light press-fit should be made between the bearing and the combination wooden bushing and bearing cover. In addition to serving as a bushing, this combination piece completely hides the bearing whenever the tray is lifted and used as a separate unit. On its outer surface a bevel of about 12° was made.

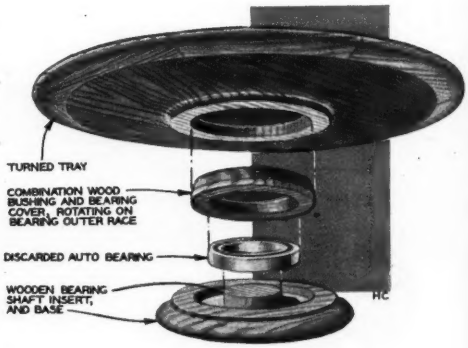
Secondly, the tray unit was turned. A small face plate was mounted to the tray unit. This makes it possible to turn the top of the tray and most of the bottom, too, during the first "chucking" set-up. One of the slower lathe speeds was used, since the diameter of the tray unit is rather large.

After the top and most of the bottom of the tray unit was turned and sanded on the lathe, rechucking was necessary. A piece of scrap material about 2 in. thick was fastened to a metal face plate. A shoulder on the outer edge of the piece was turned so that a press-fit existed when this shoulder was inserted into the circular recess that I had already turned on the top side of the tray unit. While in this position, the necessary turning was completed. This included the turning of a 12° tapered mortise to fit over the combination wooden bushing and ball-bearing cover which was mentioned earlier. Caution should be exercised so that the tray fits correctly.

Preliminary sanding was done on the lathe. Number 4-0 garnet paper was used for hand-finish sanding. In order to keep the walnut stock close to its natural appearance, no stain was used.—*Milton Grassell* •

Pinch dogs aid in clamping up the glued elements of the tray unit. Place them so that their marks will be removed during turning. Side shown below will be the tray top. Inside arcs have already been made. Outer circle will be cut when glue has set.





Give it a whirl

Even the whirl test can't pull *Marfak* apart! When ordinary grease would come apart, extra-stretchy *Marfak* stays together – sticks to the job! This test shows how *Marfak* clings to points of wear and friction longer, resists jar-out, squeeze-out and wash-out. So when your car's chassis gets *Marfak* lubrication, you get that *cushiony* ride – for 1,000 miles or more! Drive in for longer lasting *Marfak* lubrication. See your Texaco Dealer, *the best friend your car ever had.*

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TUNE IN: Tuesday nights on television — the TEXACO STAR THEATER starring MILTON BERLE. . . . METROPOLITAN OPERA radio broadcasts on Saturday afternoons. See newspaper for time and station.

[*Continued from page* 136]

Not too well understood are the four-barrel jobs offered by Carter, Stromberg and Rochester. They are really two dual units squeezed into one housing. The Stromberg has a single power system, one set of idling needles, and one acceleration pump. These are found in the front barrels known as the primary. In the rear or secondary barrels is a float, and the main metering and idle systems. One misconception about four-barrel jobs is that the secondary doesn't work until the car is tearing along at 80 mph. It's true enough that the valves of the secondary main metering system may not begin to open until the cop is right on your rear bumper but don't forget that they start to function when the throttle is opened up in low gear or when the engine is under load.

There's also a power system, or circuit, in the Stromberg job. It takes the form of a piston in the carburetor air horn which is held up in its cylinder at part throttle, but which drops down when manifold vacuum reaches 4½ to 5 inches to let more fuel enter through the power by-pass jet. At that point the road is on fire and you had better slow up! Naturally as more of these carburetors become available for use on older cars or on custom-built sport jobs it will be possible to obtain new results. For instance, the extremely low Holley model used on Ford 6 has a lot of appeal to anyone doing over a conventional car and wanting to drop the hood in the new Farina mode. This solves the problem of finding room for the air cleaner. As on Lincoln, just use the Holley Centri-Flo where the cleaner is combined with the carburetor to reduce over-all height.

Some of the advantages of the new carburetors serve as tips to owners of less advanced systems as to what causes some of their automotive headaches. Take the difficulty of starting some engines when the car is parked on an incline. This is prevented on cars with Rochester carburetion because of the concentric float bowl which keeps the main metering jet immersed in fuel at all times. Thus the carburetor cannot starve the engine if the car is off its keel. There is no stalling because of fuel starvation on sudden stopping or if the car is accelerated too quickly. In this carburetor the discharge nozzles have a central location so that they are always above the float level even if the car is standing on its ear. What this does is to insure that gasoline won't spill from the nozzles.

This concentricity of the float bowl is seen in other designs, and it is getting to be common practice to safeguard the fuel metering against starvation or flooding. If you have ever been troubled by overheated fuel, a condition similar to vapor lock but not exactly the same, you will also want to investigate the new trick of getting around this problem by surrounding the float bowl with air. In the Rochester, the float bowl is suspended from the cover and is within the outside housing of the carburetor in such a way that the float bowl has the benefit of cooling by ingoing air. In the Holley the bowl is protected from engine heat.

Three cheers also for the way the new carburetors check those annoying misses on turns. Simply because the metering system is assured adequate gasoline level under all operation conditions the engine doesn't cough when the car goes into a sharp turn. In other words, fuel has caught up with steering and weight distribution for a marked improvement in all-around cornering ability.

Plunger type acceleration pumps may soon be replaced by the new diaphragm type which has fewer parts to service, and is generally more efficient. Drive a dozen cars that have been weaned from Detroit a few years and half of them won't get away properly because the acceleration pump needs rebuilding. Another improvement which will pay off in dollars and sense for the motorist is provision for keeping the mixture normally lean even if there is restriction on the quantity of air passing through a dirty, clogged air cleaner.

Submerged inlet for the fuel discharge is another point which makes the new carburetors attractive for replacement. If you fill a pail by putting the discharge end of a garden hose at the bottom there will be very little foaming. It is the same with gasoline. You get more stable float level when the gasoline is fed to the bowl smoothly.

Another provision against hot motor delays in re-starting is seen in the new Stromberg four-barrel job. Float chambers have passages leading down from the air cleaner mounting flange which serve to let gas vapors escape after the engine has been put through its paces. It means that the pot automatically discriminates between a full-power burst and supplying only as much fuel as the engine can use. For example, if a Buick Roadmaster's driver is cruising at low speed and then presses the accelerator pedal down suddenly, there's a counter-balanced auxiliary valve which keeps the secondary system from coming into the picture until car speed reaches a point where the engine can take the extra gas without indigestion. •

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Try a ride today. See your Harley-Davidson dealer and take a buddy along. Or send 25¢ for illustrated literature and a copy of the Enthusiast magazine, filled with exciting action pictures and stories. Harley-Davidson Motor Co., Dept. MI, Milwaukee 1, Wisconsin.

HARLEY-DAVIDSONS
win national events
Peoria T. T. Championships
45" Class — 1st
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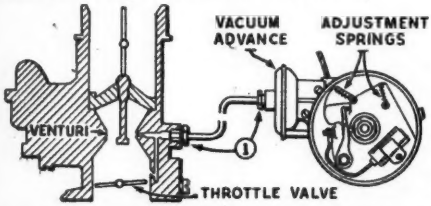
National Class C Hillclimb
1st in all 4 events!

Care and Feeding of Engines

BY S. P. CORP

POOR TIMING WASTES GAS

Your ignition distributor interrupts the primary circuit for correct timing of the spark, advancing the timing as your engine accelerates. A *vacuum distributor advance* connected to the distributor governs timing for sudden loads on the engine, such as fast acceleration.



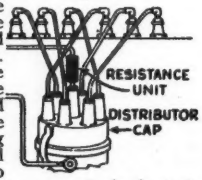
VACUUM DISTRIBUTOR ADVANCE HOOK-UP

A small pipe line connects this vacuum advance to the carburetor, which furnishes the vacuum. Should this line become clogged, poor engine performance and low gas mileage can result. An engine may backfire and fill this line with gasoline, which would clog it.

To correct, loosen nuts at each end of pipe marked (1), remove pipe from fittings, and blow it clear. *Caution:* When replacing, turn nuts halfway by hand before using a wrench, as threads are very fine and can be crossed, causing an air leak. It is a good idea to have the vacuum advance unit checked for diaphragm leaks, to protect gas economy.

ONE CAUSE OF HARD STARTING

Your car radio uses a resistance unit to remove ignition interference. This is installed in the high tension lead from ignition coil to the center of the distributor cap. Being a carbon resistance unit, its resistance increases with age and heat from the engine.



Such increased resistance interferes with current to the spark plugs and can cause hard starting, also a high speed miss. As a rule, the correct resistance is marked on the outside of the unit. It can be removed and checked by any radio service man. Remove it by pulling the wires out of each end and placing the coil wire back into the distributor cap. With unit removed, check starting of engine. If trouble is corrected, get a new unit. Car radios require such a unit for good operation.

GET VALUABLE BOOKLET FREE

"MORE POWER, Less Gas, Less Oil," a new booklet on car care, is yours for the asking. It tells about new Sealed Power KromeX Ring Sets. Write Sealed Power, Dept. J-12, Muskegon, Mich.

Space Control Panel

[*Continued from page* 104]

and amass all the electrical parts you can possibly use. Visit your local radio shop for the necessary transformer to convert 117-volt alternating current into harmless six volts. As you can see from the wiring diagram, two lengths of bus bar along the bottom of the box form common connections for various parts.

It is a good idea to first assemble all the parts you are going to install and then drill and cut the necessary holes in the sloping front of the control panel. Of course you can do this with the box assembled, but you will find it much easier to do this before it is finished.

The switches are wired so that they do not turn on the lamps directly above them. If they did, operation would be too easy. As every parent knows a small boy always likes to do things the hard way! Wire them so that they turn on the lamps or bells farthest from the switches. The voltmeter is wired across the six-volt posts of the transformer and will of course always register six volts. The milliammeter is wired in series across one of the lamp circuits or can be wired in series with one of the secondary leads of the transformer.

The more controls and switches the merrier. You'll find that after a while you may want to add more devices. Simple enough, just remove the back and go to work. The earphones and corresponding jack were in fact such an added improvement. The jack is merely connected to a flashlight battery. Flipping a switch turns on the juice so that a clicking is heard in the phones. The two knobs shown are rheostats to dim two of the lights.

Another added innovation is the series of banana jacks on both sides of the panel. The upper two on the left are connected to the secondary of the transformer so that a source of six-volt alternating current for testing is readily available. At least two switches must be turned on before any of the lights will work. The first switch turns on the line current to the transformer. This is rigged so that a 7½-watt pilot light glows when it is on "on." The next switch completes the circuit in the secondary of the transformer. At this point any one of the various other switches can be turned on to make the lights blink, bells sound, buzzers burp and pandemonium reign.

Note the automobile curb feeler. This is hooked up to a buzzer and looks like a miniature antenna. Touching it of course causes the buzzer to sound—only when its switch is "on." Such secondary switches are a constant source of delight to a boy and his friends. Sometimes the buzzer will work and sometimes it will not, depending of course upon the switch position. •

WORLD'S MOST EXCLUSIVE CLUB ADDS 12 NEW MEMBERS!

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Tops in professional prestige among racing drivers is membership in the Champion 100-Mile-An-Hour Club.

Since 1935 just 62 have qualified by completing, *without relief*, the full 500 miles in the famed Indianapolis Memorial Day Classic at an average speed of 100 miles per hour or better.

Champion Spark Plugs were the confident choice of 56 of the 62 club members. This almost unanimous preference by the racing elite points an emphatic fact for every performance-minded motorist: for championship performance in *your* car, you need Champion Spark Plugs.

CHAMPION SPARK PLUG COMPANY, TOLEDO 1, OHIO

FOLLOW THE EXPERTS—CHOOSE THE SPARK PLUGS

CLUB ROSTER

Emil Andres	Sam Hanks	Jim Rathmann
Billy Arnold	Mack Hellings	Jimmy Reece
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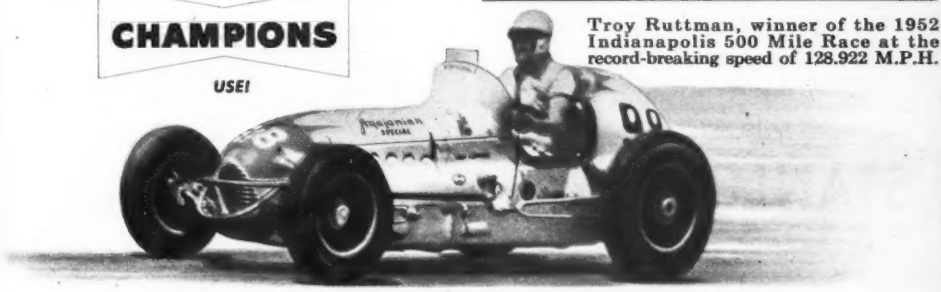
George Barringer	Ted Horn	George Robson
Cliff Bergere	Jimmy Jackson	Mauri Rose
Walt Brown	Joe James	Paul Russo
Jimmy Bryan	Andy Linden	Troy Ruttman
Bob Carey	Doc MacKenzie	Bill Schindler
Duane Carter	Johnny Mantz	Wilbur Shaw
Joie Chitwood	Rex Mays	Russ Snowberger
Hal Cole	Jack McGrath	Jimmy Snyder
George Connor	Lou Meyer	Babe Stapp
Art Cross	Zeke Meyer	Stubby Stubblefield
Bill Cummings	Chet Miller	Joel Thorne
Lewis Durant	Lou Moore	Louis Tomei
Dave Evans	Duke Nalon	Luigi Villoresi
Myron Fohr	Mike Nazaruk	Lee Wallard
Fred Frame	Johnny Parsons	Frank Wearne
Chet Gardner	Kelly Petillo	Howdy Wilcox
Cliff Griffith	Ray Pixley	

CHAMPIONS

USE!



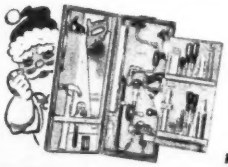
Troy Ruttman, winner of the 1952 Indianapolis 500 Mile Race at the record-breaking speed of 128.922 M.P.H.

Merry Christmas!

STANLEY TOOLS

A Christmas "natural" to warm the heart of any man or boy! Give Stanley Tools . . . complete sets in chests or tools in Christmas boxes. Buy them at your hardware dealer's. Look for the famous STANLEY trade mark.

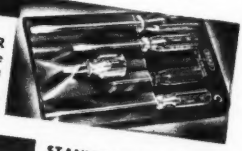
STANLEY TOOLS, NEW BRITAIN, CONN.



HOBBY HOUSE SET No. 910 — A top-notch group of tools to make any man or boy feel proud. $72.50*

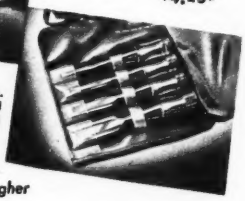
OTHER CHESTS AND SETS FROM $23.75* UP

"YANKEE" PUSH DRILL No. 41 — None better for boring small holes in wood or plastics. 8 Drill Points in handle. $5.25*



STANLEY SCREW DRIVER SET No. X3000M — Five drivers for home use, and a handy kit to hold them. $2.80*

STANLEY BIT BRACE No. X1250 — Well-made for tough boring jobs. Beautifully finished. $4.25*



STANLEY CHISEL SET No. X64 — ¼", ½", ¾" and 1" with plastic handles and a kit to hold them. $10.50*

*Western Prices Slightly Higher

SEND FOR THIS BOOK — IDEAL FOR CHRISTMAS GIVING $2.00
Stanley Tools, 5122 Elm St., New Britain, Conn. In Canada: Stanley Tool Co. of Canada, Ltd., 5122 Stanley St., Roxton Pond, Quebec.

THE TOOL BOX OF THE WORLD

STANLEY

Reg. U.S. Pat. Off.

Hardware • Tools • Electric Tools • Steel Strapping • Steel

Where's That Key?

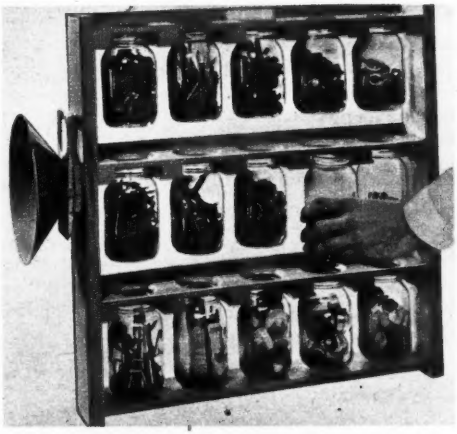
[*Continued from page* 102]

applying the second. Assemble the board by fastening the strips to the back with small flathead screws passed through holes in the board and screwed into the strips. The strips with the single dado are the top and bottom strips on the board as indicated in the diagram. Glue the cutout letters to the section of the board above the top strip. Finish by waxing.

Make the key tags of transparent ⅛ in. plastic stock. The strips measure 1¼x3½ in., with one end rounded. Drill a small hole through the rounded end to take the key chain. At the square end, drill the dot identification markers. Set the drill press so that it drills partially into the plastic, not entirely through it. Drill as many blind holes as needed to match the dot identification marks on the board, from one to six. Color the blind holes with paint to make identification easy.

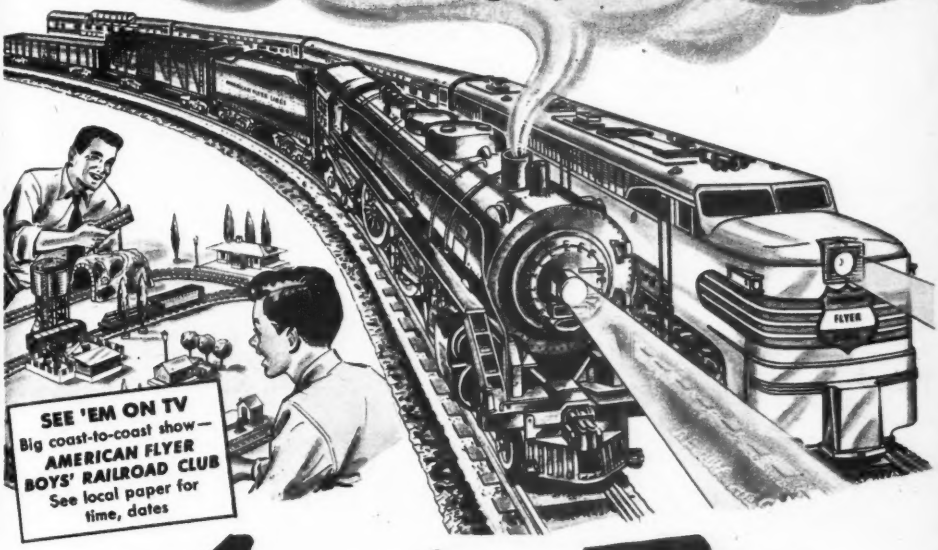
Attach a key chain to each key tag. These chains may be purchased in any dime store. Put the proper key on each chain and slip the tags in place in their slides. With this type of identification, should the key become lost there is no danger of a stranger using it since only the code dots appear on the tag. •

NEW for the SHOP



E-Z Find Handirack stores those loose ends in your shop, is marketed in two ways: kit containing all parts, including sorter-funnel and jars, sells for $7.65. Assembled model costs $11.50. Toolcraft Products Co., 5090 Tennyson St., Denver 12, Colo.

For Real Railroading right at home...



SEE 'EM ON TV
Big coast-to-coast show—
AMERICAN FLYER BOYS' RAILROAD CLUB
See local paper for time, dates

American Flyer

The scale model electric trains that run on REAL 2-RAIL TRACK

If it's realism and authentic action you like—you want an American Flyer! No other electric train so truly captures the romance and adventure of railroading. Superb engineering and meticulous attention to detail make American Flyer Trains outstanding. It's almost as if a magic wand had been waved over real-life locomotives and cars, reducing them to 3/16 inch scale! Proportions and colors are perfect—and everything is there, right to the last rivet! A whole new world of fun begins on Christmas Day with an American Flyer Train. Why not pass the word to Dad, right now?

THIS BIG EXCITING TRAIN BOOK —YOURS FOR ONLY 10¢

GILBERT HALL OF SCIENCE
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I enclose 10¢ for which send me immediately the huge 48-page Train Catalog filled with full-color pictures of AMERICAN FLYER Trains and accessories, PLUS Gilbert Erector sets, Chemistry sets, Magic sets, Tool sets and Puzzles.

NAME.....

STREET.....

CITY.....ZONE.....STATE.....

This offer good in U.S.A. only

AMERICAN FLYER TRAINS ARE MADE BY A. C. GILBERT, MAKER OF WORLD-FAMOUS ERECTOR

MAIL THIS CARD TODAY AT OUR EXPENSE

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■ Take the advice of MI Guy and give your friends a real gift this Christmas—12 months of MECHANIX ILLUSTRATED, the most magazine for the money in America. And send yourself a subscription, too, in case you are not a subscriber now.

MECHANIX ILLUSTRATED • FAWCETT BUILDING • GREENWICH, CONN.

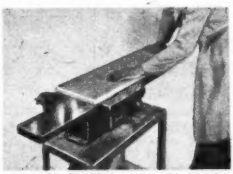
WHAT? YOU INSULATED YOUR HOUSE YOURSELF?
SURE-WITH GOLD BOND ROCK WOOL BLANKETS-AND WHAT A DIFFERENCE!
WITHOUT INSULATION THE FURNACE HEAT WAS GOING RIGHT UP THROUGH THE ROOF.
SO I PUT FIREPROOF GOLD BOND ROCK WOOL BLANKETS IN THE ATTIC. IT SURE WAS EASY!
Gold Bond
IN THE UNFINISHED PART, I JUST LAID THE BLANKETS WITH THE VAPOR BARRIER DOWN!
IN THE WALLS AND CEILING OF OUR ROOM I USED 8 FOOT BLANKETS LIKE THIS- IT WAS A CINCH.
MY GOLD BOND LUMBER AND BUILDING MATERIAL DEALER FIGURED THE WHOLE JOB - SHOWED ME EXACTLY HOW TO DO IT...
BUILD BETTER WITH
Gold Bond
BUILDING PRODUCTS
EVEN SUPPLIED A STAPLING GUN- (NAILING IS EASY, TOO!)
MY FUEL SAVINGS HAVE MORE THAN PAID THE COST. THE WHOLE HOUSE IS WARMER IN WINTER AND MUCH COOLER IN SUMMER! WHY DON'T YOU SEE YOUR GOLD BOND DEALER ABOUT INSULATING NOW!
LOOK FOR THE STRIPED PACKAGE
Gold Bond
ROCK WOOL
SEALED BLANKETS
ADD-A-ROOM NOW!
with Gold Bond
BUILDING PRODUCTS
NATIONAL GYPSUM CO.
BUFFALO 2, N. Y.

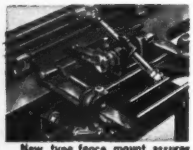
BIG Money-Saver

Atlas 6" JOINTER-PLANER

For Furniture, Remodeling, Construction

Whatever you want to do—"finish out" a house or a room, remodel, make kitchen cabinets or furniture—this Atlas 6" jointer-planer is the tool to own.


Rear table is wide to support big boards.


New type fence mount assures fast set up—greater rigidity and accuracy.

Cutter head removes for sharpening blades without disturbing their setting.

Table and fence are both *big* for big board work . . . *precision-ground* for smoothness and accuracy. Fence is rigid—triply supported, easily positioned, has *width-of-rabbet scale.*

You can plane mirror-smooth finishes in seconds with the Atlas — rabbet, chamfer, taper, edge. It has no equal in value for the home shop, contractor, or commercial shop. See it at your dealer's, or send post card or coupon for catalog.

NEW 20-PLAN BOOK

Original furniture designs by national authority. Step by step instructions and plans, all thoroughly tested. Finest book of its kind—only $ .50 postpaid, $ .65 outside U.S.A.

ATLAS PRESS CO.
1222 N. Pitcher St., Kalamazoo, Mich.
Please send catalog showing jointer-planer.
Inclosed is_____for_____plan book.

Name_____

Address_____

City, State_____

Santa Clauses

[*Continued from page* 57]

himself personally with the dog for a period of two to six hours. If the hound has not been properly trained to walk without pulling on the leash, Jack will not consider the case. "Everyone wants to look good on the job but when a dog pulls you, well, it doesn't put you in an advantageous light," Jack says. "Besides the appearance, the energy it takes to pull a dog back every few minutes is an unnecessary expense to the muscles when you consider a walker walks at least 30 dogs a day."

Up in the hills of Nilgiri in India there is a secluded sanitarium. Inside, a tall, dark man cures the ailments of thousands of patients brought in by farmers from neighboring towns and villages. This man, dressed in white and wearing rubber gloves, is reverently addressed as doctor and has as his patients tiny ailing larvae. He's the Doctor Kildare of the silkworm world.

Inside a big circus tent, a man is sprinkling white flour over the ground. After he finishes the job, two boys are called in to lead an elephant over the flour-strewn surface. The elephant's footprints are then measured for size by the animal tailor. He wheels in his red and blue cart containing all the essentials for his trade. From the measurements imprinted in the flour, the tailor will make a pair of shoes for the elephant to wear in his next performance. When that is done, the monkeys must have their coats re-frilled, the giraffe needs a new sweater for his neck, and Betsy, the old gray mare, is waiting for a replacement of her threadbare hat.

Some people can lie down on the job without worrying about the boss. In a department store in Clinton, Iowa, for instance, a very charming and attractive young woman lies on a mattress on a large bed demonstrating its restful qualities. By her facial expressions the customers gleam that the mattress has all the comforts claimed for it by the manufacturer. She says her job is a very soft one.

Grandmother used to sit before the fire in the winter and spin on the old spinning wheel. Well, Hollywood has its spinners, too. They toil all day by their machines turning out cobwebs for haunted houses and other antiquities.

Most people would feel highly insulted if they were referred to as dumbbells. Fay Parker, however, doesn't seem to mind it too much. Several months ago her husband, owner and operator of a small construction company, asked Fay for a small favor. He was short a counterweight for a lifting job that needed to be done. Would Fay—all 220

[*Continued on page* 164]

DO IT TODAY! SWITCH TO

MILD

KENTUCKY CLUB

"Look! Another man switched to Kentucky Club—the thoroughbred of pipe tobaccos."

Notice how much better your pipe tastes—how much fresher your mouth feels when you switch to Kentucky Club. Look for the blue tin with the picture of the red-coated rider. Send for free catalog showing fine pipes and how to get them at big savings. Mail Pouch Tobacco Co., Wheeling, West Va., Dept. 90

Don't Let Your Engine Get Old This Winter

Mechanics know that most engine wear occurs in winter. That's because oil is cold, stiff, slow to get around to all moving parts. So you have longer periods of DRY STARTING which causes loss of performance and eventual repair bills.

That's why mechanics say, "Use Miracle Power in gas and oil." Miracle Power contains colloidal synthetic graphite in suspension. This graphite forms a breathlike, protective film on engine surfaces . . . lubricates instantly . . . provides a better compression seal.

Result: You keep your engine young—it starts easier, has more power, uses less gas and oil.

Protect your car this winter—it may have to last you longer than you think. Try Miracle Power next time you get gas.

At better service stations, garages and car dealers, or use this coupon for introductory offer.

Miracle Power Division
THE AP PARTS CORPORATION
583 AP BUILDING, TOLEDO 1, OHIO

Now! Push Button Lubrication!

Miracle Power Pres-A-Luber is ideal for car engines as well as general household lubrication. Just push the button for a fine Miracle Power spray that reaches all the hard-to-get-at places.

Also available are Pres-A-Lubers containing dgf 123—companion product to Miracle Power for use as a dry pre-lubricant during engine re-assembly.

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THE AP PARTS CORPORATION
583 AP BUILDING, TOLEDO 1, OHIO

Enclosed find $.....for which please send me *postpaid:*

..... trial cans of Miracle Power at 75c each (1 for gas, 1 for oil)

Please send me free literature on making my car last longer.

Name_____

Address_____

City_____ Zone_____ State_____

"Don't worry, Spot!..We'll put it back together with 'DUCO' CEMENT!"

Fix it for keeps
WITH
DU PONT DUCO CEMENT

REG. U.S. PAT. OFF.

BROKEN TOYS of all descriptions can be quickly repaired with "Duco" Cement . . . without fuss or muss.

LOSING YOUR GRIP? Anchor loose golf club grips with "Duco" Cement. Good for tennis rackets, too.

BUILD STRONGER MODELS. Quick-drying "Duco" Cement is standard equipment with most model-builders.

SNAPPED EYE-GLASS FRAMES? It's not just an emergency repair...they'll *stay* fixed when you use "Duco" Cement.

STRONG, TRANSPARENT FLEXIBLE, WATERPROOF

BETTER THINGS FOR BETTER LIVING
. . . THROUGH CHEMISTRY

Santa Clauses

[*Continued from page* 162]

pounds of her—oblige by acting as a dumbbell? Fay consented and she has helped her husband out many times since. In fact, Fay has adopted it as her own special part-time profession.

There's a skeleton in many a family's closet but there may be more than one in some—in Will Harpers', for instance. In his shop in Central Falls, R. I., you encounter human skeletons on every table, chair and chandelier. On Mondays through Fridays, Will sits behind his long work table, fits the bones of human skulls together and attaches the completed skulls to human skeletons. Will assembles the skeletons for medical schools and private collections.

Did you ever get the feeling that someone was watching you from some concealed nook? Well, you never can tell. In the Los Angeles Public Library, a man constantly stands behind a grille with a powerful pair of binoculars. He's known as a library sleuth. And his job is to spy on would-be thieves and defacers of books in the library.

In the season when the moon hangs low and deep night shrouds the paths and byways, the time is at hand when spooners sigh. But the spooner is not only a Romeo—there are many men who are listed in the professions as spooners. While the spooner of tradition pitches woo on the conventional park bench, the professional spooner scoops out holes for the insertion of dynamite charges on a construction job.

Just about five o'clock one afternoon in Los Angeles, the clouds emptied a torrential downpour upon the city. In a small soap factory it was quitting time and Benny was sad to see the rains come for he knew it would instigate the same old joke from the boys. "Don't open your mouth, Ben," they would say, "you know what will happen. Someone will think you're chewing bubblegum." Ben is a soap-taster in the factory. When each new boiled batch is ready to be judged, he tastes a sample of it to make sure it is done and is made to the right specifications. And as a soap-taster he is subjected to many a round of supposedly hilarious comments about his job.

But, Santa Claus, salami-tyer or soap-taster—most of these people have one thing in common. They're not ashamed of their work. In fact, circumstances have banded them together into a sort of proud fraternity of odd-jobholders. For, despite all the friendly gags and barbed remarks, the fact remains that these jobs are unique.

And such good topics of conversation. •

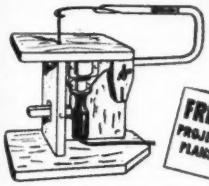
"BE PRACTICAL . . . GIVE TOOLS THE ENTIRE FAMILY CAN USE!"

CUTS SCROLLS LIKE MAGIC . . . SANDS AS IT SAWS

Only **$5.85** with 3 Saw Blades

SAFE AS A HANDSAW!

INDISPENSABLE FOR HOBBY OR WORKSHOP USE



FREE PLANS

Have fun and save money. Make your own Jig-Saw stand. Complete, easy-to-follow plans furnished free with each Moto-Saw—also patterns for making six useful projects.

FUN FOR BOYS FROM 8 TO 80! DREMEL *Electric* MOTO-SAW

Here is a tool so *simple*, so *safe* that children can use it for hobby projects . . . women can use it as a handy household tool. Men marvel at its effortless operation, its amazing foot-a-minute cutting speed. Just plug it in any 110-120v A.C. outlet, and a press on the trigger-starter produces positive, fool-proof action. Moto-Saw has only two moving parts, never needs oiling!

No other tool pleases so much for so little cost. Moto-Saw is ideal for intricate work; blade can be adjusted to cut four ways. Sands as it saws through ¾" medium hard wood of any length—saws to the center of 19" widths. See "where to buy" instructions at bottom of this page.

GRINDS • CARVES • DRILLS • ROUTS • ENGRAVES • SHARPENS

DREMEL *Electric* MOTO-TOOL

FASTEST MOST POWERFUL TOOL IN ITS CLASS—APPROX. 27,000 R.P.M. Most practical tool a man can own—more powerful than any similar tool you can buy. Works well in wood, plastics, and metal. For home maintenance jobs you'll wonder how you got along without it. For model making it's a must. And for general shop operations it saves time and money. Compare it, try it, buy it. You be the judge.

Check These Important Features: Oilless sealed bearings • Dynamically balanced armature • Shockproof, Bakelite housing • Dust-filtered air cooling system • Sturdy 110-120 V., A.C.-D.C. motor • Wt. only 13 oz. • A precision tool widely used in industry for many years.

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They Never Come Back

[*Continued from page* 71]

The simplest methods are double exposure and double printing. Wraith-like figures can be put on plates by using an unevenly mixed developer. Another clever way of producing ghostly images is to drop a tiny crystal of hypo on the plate while it is being developed. The chemical dissolves slowly, creating the weird effect.

These, then, are the arguments against the existence of ghosts and against the validity of spirit messages from the beyond. What is the rebuttal?

Interviews with many individuals and groups reveal that the one big argument, in fact, the *only* argument that ghosts exist, is just this, "There are many ghosts actually seen by people for which science can offer no reasonable explanation." Is this a valid one?

Believers agree frankly that the vast majority of the spectral figures people claim to see are fakes, illusions or figments of the mind. Harry Price, founder and director of England's National Laboratory of Psychical Research, declared before his recent death that fully 99 per cent of all supernatural happenings were phonies.

But what about that one per cent?

Says Hereward Carrington, director of the American Psychical Institute, "Despite the illusion, fraud and superstition which have unfortunately associated themselves with this subject, there are genuine psychic phenomena which are unexplained by modern science."

The American and British Societies for Psychical Research, two separate organizations, have delved for years into psychic manifestations. Investigators have approached all ghost stories with hard common sense, rejecting the trappings, trickery, fear and expectancy which often play very strong roles. And, says Professor Gardner Murphy, chairman of the American group's research committee:

"There is enough well-authenticated evidence, even when studied with a cold and critical eye, to show that the paranormal is not only a legitimate field of inquiry but one of great importance. Workers in this field stand on the threshold of a huge unknown, urgently calling for investigation."

Mr. Price devoted a lifetime to exposing fake spiritual phenomena, yet he admitted having seen, touched and spoken to a ghost! "Unquestionably," he said, "it was the most thrilling experience in a lifetime of debunking spiritualist charlatans."

This is his amazing story:

A six-year-old girl died of diphtheria and

many years later her mother began receiving nightly visits from her. She would remain for a few moments and then disappear. Some friends to whom she confided the story arranged for regular seances in their home, and the spirit of the little girl began appearing there regularly. The story came to Price's attention and he received permission to attend and make whatever tests he wanted.

On the night of the seance, Price sprinkled starch powder outside the room, locked the door and pocketed the key. He put more powder in front of the door and pasted strips of adhesive along the door and windows. A half dozen persons, including the child's mother, sat and waited.

And then it happened. In the darkness Price heard the mother sobbing and calling the child by name. Something brushed his hand, something warm and soft. Price held his breath.

Slowly, he stretched out his hand after asking permission to touch the spirit. To his utter amazement, he felt the warm flesh of a child! He was so close that he could hear her breathing—he placed his hand on her chest and actually felt it rise and fall softly. Her legs and feet, he noted, were those of a normal six-year-old child and her long hair cascaded over her shoulders. Price put his ear to her chest and heard her heart beating.

And now he asked if he might talk to the spirit. He got no answer to his first question, "Where do you live?" None to the second or third. But then he asked, "Do you love your mummy?" The little girl replied gently, "Yes."

A few moments later the spirit vanished. Price thereupon examined the starch powder inside and outside the room and looked at the strips of adhesive on door and windows. There were no footprints—nothing had been touched!

Fake? Illusion? Hallucination? Or was it a real ghost?

Mr. Carrington of the American Psychical Institute points out that a large segment of psychical manifestations concerns the appearance of apparitions at the moment of death. That is, an individual may be seen alive and well at a certain spot despite the fact that sudden death came to him at a point many miles away. The American Society for Psychical Research once received 30,000 replies to a questionnaire it distributed on this phase. After studying the reports, it concluded:

"Between deaths and apparitions of the dying person a connection exists which is not due to chance alone. This we hold as a proven fact."

Mediums, those persons supposedly gifted with the powers to communicate with the

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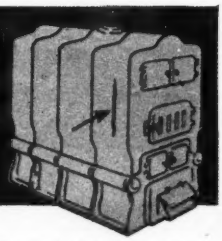

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dead, have been much maligned—and many rightfully so. Many are out-and-out frauds but consider Mrs. Leonore Piper, perhaps the greatest of all time, whose achievements are still talked of in hushed whispers.

Psychic researchers, including William James, Dr. Richard Hodgson, Sir Oliver Lodge, Dr. Walter Leaf and many others, studied Mrs. Piper for years, even had her shadowed by detectives to learn if she got her information by normal methods. But they could find out nothing.

Mrs. Piper would pass into a deep trance and then start writing. She would give information such as names, dates, facts of all kinds, which she couldn't possibly learn by herself. William James wrote that she had knowledge that she could not have acquired "by the normal use of her eyes and ears and wits."

Once Prof. James H. Hyslop, a noted psychic researcher, tiptoed into the room after Mrs. Piper had gone into her trance. Heavily masked, he took a chair directly behind her. Not only was she unaware of his presence but she had never seen or heard about him and knew nothing of his background. Yet on questioning, she wrote out a voluminous account of the professor's family and early life. It took him six months of digging to check the information. It was all correct!

Many hundreds of persons heard Mrs. Piper tell them detailed facts about loved ones long since dead. How did she do it? Here is Mr. Carrington's explanation.

"To all appearances Mrs. Piper's soul was in some manner removed from her body during the trance and somehow replaced by another spiritual entity who then succeeded in communicating through her."

Another amazing medium was Eusapia Palladino of Naples. Even though she was held securely hand and foot by impartial observers, she would cause tables to tilt, rise and quiver in the air. She would cause a zither to play though no fingers were near it. She would make lights appear and things dart around a room.

Once Howard Thurston, the famed magician, watched her perform. She impressed him so much that he offered a $1,000 reward if any magician matched her feat. No one ever took up the challenge.

Scientific investigators have tried to analyze Eusapia's remarkable powers in terms of the concrete, the realistic, the scientific. They have failed. Does the answer lie in another world?

If there are unexplained mediums such as the amazing Neapolitan woman, there are also blatantly fraudulent ones like the 30 psychic performers who staged a shindig not long ago

[*Continued on page* 173]

CARvalcade Of 1952

[*Continued from page* 83]

Crosley threw in the sponge but will go down in the annals as the only one who produced a $1,000 car in this country since World War II.

At Daytona Beach, Brewster Shaw won the American division of the NASCAR national speed championship in a V8 Chrysler Saratoga, averaging 100.09 mph. In the international stock sedan class your Uncle Tom took the hardware with a Mark VII Jaguar by nosing out Shaw at an average speed of 100.94 mph. In strictly late-model stock car racing, the Hudson Hornets again proved, as they did in 1951, that their top handling qualities and excellent brakes were all that was needed to walk off with most of the prize money. In every race there were faster cars but Hudson proved roadability is far more important than just plain speed. The Olds 88s won a few races and so did the Plymouths but it was a Hudson year in a greased landslide.

As unwieldy size continues in style in Detroit, more and more Americans are seeking the comfort of safety. Youngsters and some not young at all are turning to the fun as well as safety of driving—foreign cars. This invasion achieved the ultimate in acceptance when side curtains, tops, wheels and tires, to say nothing of trailers, for the MG were listed in the current Sears, Roebuck catalogue! While our cars were getting more uniformly monstrous, foreign cars were offering a wide range of style, price and size. Across the big salt pond is where most of 1952's automotive strides of real importance were made.

The king of them all is the big new silent sports Bentley sedan which is without question the greatest full-size car I have ever ridden in. I was privileged to ride in the Bentley owned by Charles Faroux, commissioner of the Le Mans 24-hour endurance contest, when it was used as an inspection car to check up on the whole 8½-mile course. This sedan never got in the way of the racers as it was faster than about 50 per cent of the competitive buckets. It was a distinct thrill to travel down the straightaway at close to 124 mph in an absolutely stock car and sail by the Nash-Healey that eventually came in third at the finish of the race! As for cornering, the Bentley showed almost the agility of a Cunningham.

From bombed-out Stuttgart in Germany, the famous Mercedes-Benz three-cornered star picked itself out of the rubble to become once again champion of the world by finishing one and two at Le Mans. In 1952, from the factory that 13 years before had built the most outstanding competition cars ever conceived, emerged two small 3-litre coupes that, under

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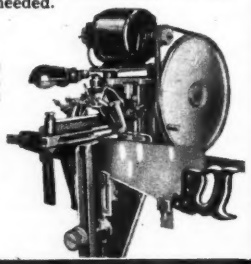

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the masterful direction of Alfred Neubauer (who also managed the pre-war Mercedes teams), showed the boys not only how to build cars but how to run them in a race.

Actually, 1952 was Briggs Cunningham's year to win at Le Mans. He had the fastest team of three cars at the shindig and two of the best drivers. With a little more luck and a little more push he might have won. The new Cunningham coupe, the fastest car, ran like a grilled bomb and was in an easy-to-take-over-the-lead third place when it made its first pit stop after more than 400 miles. Unfortunately, the relief driver rammed the coupe into a sand bank before going two miles and when the car was extricated nearly two hours later, it was hopelessly out of the contest. Phil Walters took over again and gave it the old try but he ran into bad luck when a valve-keep broke and that was that. John Fitch, driving Cunningham No. 3, was also in a position to take over the lead when his relief driver spelled him. But a valve hung up before the relief driver covered a lap and that left only Briggs to carry the mail in Cunningham No. 1. Briggs drove for nearly 20 hours without relief, which was a fine example of the iron Cunningham constitution but maybe not the smartest way to come out on top. If he had pushed just a little harder and shared half the driving with his capable relief driver, Bill Spear, he might have been a lot closer to the boys from Stuttgart at the finish. As it was he wound up in the fourth slot which is better than par for the course in this hassle but leaves 1928 still our best year at Le Mans. That year a Stutz came in second and two Chryslers took third and fourth places.

The outstanding car in the Le Mans '52 race, however, was not the Mercedes or the Cunningham but a flea-size French 1½-litre Gordini. Time and again this half-pint, that races in the same displacement class with an MG, got down the long Le Mans straightaway at better than 170 mph and was leading the race after nearly 12 hours, averaging better than 100 mph! When it came in for its early morning pit stop just before 4 a.m. the Gordini's front brakes were gone from the terrific pace it had set and that was it, though the engine was as sound as it had been 12 hours before. After talking to Phil Walters and some others who brushed with the Gordini, all agreed that this little biscuit was the most astouding car they ever saw in action. The writer personally timed it, on several occasions, lapping the Le Mans course at better than 106 mph. The course record is 107-plus. To the French Gordini, all things considered especially size, goes our vote as the greatest automobile of 1952.

The American sports car scene is faced with some new, genuine crises as the year closes.

After returning from Le Mans the Cunningham literally walked off with every contest they entered, including a 1-2-3 finish at Elkhart Lake, 1-2-3 at Thompson Speedway, Connecticut, and the single Cunningham entered took the Convair race too. The fact that a group of what would pass for amateur builders in West Palm Beach, Florida, put cars together that could take the best in the world, built by old line competition builders, is a king-sized feat. The Cunningham is the first truly American sports car in 20 years. While Detroit talks and plays around with phonys, these thoroughly American neophytes actually produced cars which have beaten Cad-Allards, Ferraris, Jags and many other famous makes. On these shores the Cunninghams at the moment appear invincible, which makes it a little hard to sell a $16,000 Ferrari for the purpose of finishing fourth or fifth behind the half-as-costly Americans.

In the popular, smaller sports car class, the great MG has reigned as top banana in the 1½-litre group. With its 1¼ litre engine it was the most popular all-around sports car in the world, bar none. Today it's still a swell sports car but in open competition it is strictly outclassed. Early in 1952 the 1½-litre German Porsche at Vero Beach clearly showed that the MG was a has-been. MG at this moment is on the verge of enlarging the stock engine to a full 1½ litres (76 to 91 cu. in. displacement) but it is very doubtful if even this will do the trick. The Porsche has the MG outclassed in every department from streamlining to 400 pounds less weight. The Porsche costs just twice as much as an MG but this is not a very comforting thought to a trailing MG fan. The MG from now on, unless some serious changes are made, will only look good in competition in races for MGs.

So that about wraps up the CARvalcade of 1952. What about 1953? Detroit is still hollering about big things to come so let's all sit back now and see who'll come up with the best mousetrap by this time next year. •

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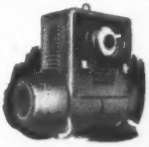

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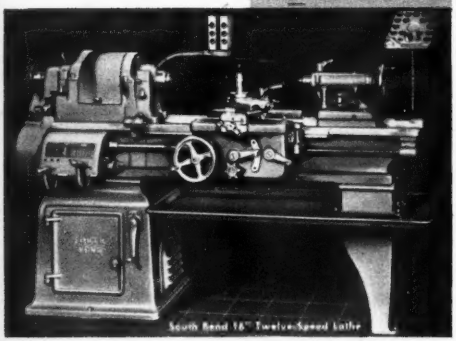

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[*Continued from page 92*]

From these he received a number of orders.

He bought a used lathe, drill press and a few other pieces of light equipment, and began to build his rifles in his garage. He farmed out work which he couldn't handle. Within a few months orders kept increasing and finally his business threatened to get out of control. He hired a mechanic to work with him in the garage.

One day a tall, lanky, ruddy-faced man came to Weatherby and drawled, "You Weatherby?"

"Yes," answered Roy, recognizing his caller to be Gary Cooper, the movie star.

"Well," drawled Cooper, "I was huntin' in Wyomin' and I saw a guy kill an elk with one shot with your gun. It was the greatest single shot kill I ever saw. I'd like one of your guns. Special fitted for me."

Weatherby built and fitted a custom rifle for the actor. The stock was designed in a beautiful western motif. Soon, several noted Hollywood big-game hunters ordered similar custom-made jobs. The former President of Mexico, Miguel Aleman, ordered five of them.

Africa has been the real proving ground for Weatherby rifles, and he has taken them over there himself to make the actual tests. On a recent trip he shot over 50 head of game. The rest of his party shot over 100. All were using Weatherby Magnums ranging in caliber from .257 to .375. He killed a 700-pound zebra, wart hogs, waterbucks and wildebeest using a .257 Weatherby Magnum with an 87-grain bullet travelling at 4,000 feet per second. In spite of the fact that his outfitter, called white hunter in Africa, told him it couldn't be done, a number of times he killed an elephant with one shot, using a .300 Weatherby Magnum with a 220-grain bullet.

In recent velocity tests, Weatherby shot standard .30-06 and .300 Weatherby Magnum loads using 180-grain bullets into five-gallon drums of water. The .30-06 penetrated the front of the drum; the Magnum destroyed the drum completely.

"Tomorrow's rifle definitely will be the high-velocity type," insists Weatherby. "But, from my experiences in Alaska, the Yukon Territory, British Columbia, various parts of America, and my last hunting trip in Africa, I have come to the conclusion that we have not yet reached the velocity where we can count on 100 per cent kills at all times when animals are hit in non-vital areas. My rifles will kill approximately 90 per cent of the time—but what the same bullet will do traveling 5,000 feet per second none of us know. On my next trip to Africa I intend to find out."

At one time Weatherby's cartridges were known as "wildcats" because ammunition was not available for them commercially. He went to one of the arms companies with his problem but to undertake their manufacture would require an expenditure of about $50,000. He didn't have it. Finally, he made arrangements with a manufacturer who had machinery which could be converted into cartridge case-machinery. The two of them worked together and now they are producing cartridge cases for all his rifles and they can be obtained from his store.

Anyone who doubts Weatherby's popularity needs only to visit the west-coast plant to see the intense activity. It's not uncommon for Weatherby to receive in a day as many as 20 long-distance calls from Alaska, India, Africa and Germany from customers ordering custom-built rifles. Often clients fly as many as 3,000 miles to South Gate to be fitted. Here is the mark of success, and it all started as a hobby and a test of an idea. •

They Never Come Back

[*Continued from page* 168]

at Falcon's Lair, home of the late Rudolph Valentino. The occasion was the great star's birthday and the object was to get in touch with his spirit, presumably to wish him well.

To the tune of "Clementine," the group began to sing,

"Valentino, Valentino, we desire to contact you." The second stanza began: "Raise the table, raise the table, raise the table, Rudy dear."

All at once, one woman screamed. She rose and began to twitch violently, whirling about the room as she did so: "A message is coming through!" she shrieked. The mediums crowded around, gasping, "What's he saying, what's he saying?"

"It's very terrible," the woman moaned. "Valentino said to tell you he is disappointed —yes, disappointed. And what is he disappointed in? He is disappointed in the quality of current motion pictures!" Whereupon she collapsed into a chair.

Yes, that's the story of ghosts in two nutshells. On the one hand there are strange things happening, weird things that baffle science and give promise of other worlds where unexplained things emanate. On the other hand, there are silly shenanigans.

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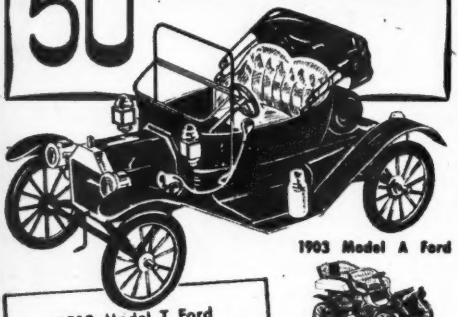

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They Lassoed A Fortune

[*Continued from page 76*]

he gave Knox and Reese an order for one gross of lassos.

Jubilant over their first big success, Dave and Bill immediately went to work. The first night they ran out of rope. Bill went to the neighborhood hardware stores and bought them out. Still they didn't have enough.

Then they discovered a place in Philadelphia where a load of surplus rope was for sale and they needed $2,900 to swing the deal.

They went to the Corn Exchange Bank and laid their cards on the table. The bank refused a loan but they themselves bought the rope and made a deal for the boys to repay the money in monthly installments.

A few days later a huge trailer carrying some 500,000 feet of rope backed up to Bill's house. The vets took one look at the load and gasped. "Where'll we put it?" said Bill. "Search me," replied the puzzled partner. They filled the living room, bedrooms, bathroom and cellar and still needed space.

Bill's mother, father and sister helped to cut the rope with razor blades while Dave and Bill attached the swivels and packaged the product in crude cellophane envelopes.

After a long, thorough search they found a machine shop that could turn out the swivels in large quantities at a reasonable price. Next, as business improved, they latched onto some surplus machinery and moved their basement operation into a plant in West Philadelphia. They added some help and by the end of the year their business was beginning to show signs of success.

Then they realized that in order to make their item universally known, they'd need some high-powered promotion and outside help.

In the fall of 1947, Roy Rogers brought his rodeo to Philadelphia. Remembering the cowboy's promise to help them, Knox and Reese decided to take advantage of his offer. They called on Rogers and showed them their improved lasso.

He was impressed with it and its safety feature which prevents it from forming a tight noose which might get some junior cowpoke in trouble. He offered Knox and Reese a check for $25,000 to help the project but it was modestly declined. Knox and Reese had a counter-offer. Would he sponsor the lasso and let them use his picture on their promotion? He agreed.

Roy Rogers' trademark on the colorful cellophane packages made business boom. Soon they were producing 6,000 lassos a week. They now use more than seven million feet of rope a year and spend something like $60,000 in window displays, some of them

talking displays of life-size cardboard cut-outs of Roy Rogers.

Last year when Roy Rogers appeared in New York with his rodeo, some 50,000 ropes were sold in the audience. When Dave Garroway was doing his TV show in Chicago, he used the lasso for a sequence in his show, not mentioning the name of the product. Next morning, Knox and Reese got a long distance phone call from Marshall Field, Chicago, who ordered 200 dozen to be shipped air express. The store is now a steady customer. And the way sales are mounting, soon every cowboy-minded person in the country will be one, too. •

Floating Airports

[*Continued from page* 66]

arrestor gear at the first island. A deck handling tractor then couples to the nose-wheel gear and tows the plane to the "down" elevator. Painted tracks on this portion of the deck help keep it in alignment.

Descending to the hangar deck, the plane is towed off the elevator and forward into the "depot" area. Here, completely under cover, the passengers deplane or emplane and the ship is serviced. It is then towed forward to the "up" elevator and ascends to the flight deck again. The tractor then tows it clear of the elevator and the plane's undercarriage is engaged to the catapult traveler. A variation of the new British steam catapult accelerates slowly and smoothly and whips the plane into the air for the next leg of its flight.

Adjoining the depot area in a large central island are the passenger accommodations. If the traveler wishes to go directly ashore, he is directed to a door on his right. This leads through a thwartship passage to the taxi waiting room, customs shed, etc. Fast water taxis are tied up to an open boat landing. In another section, helicopter taxis load in a pair of elevator shafts and are then whisked to the flight deck above to take off for various points in the city. Should the traveler find it necessary to wait for another plane, he turns to his left. Here he finds a spacious and comfortable lounge, flanked by an information booth, airline offices, newsstands, etc.

A city like New York could anchor a whole string of these airports in nearby Long Island Sound, the Lower Bay or even in the Hudson River where landing approaches and take-offs could be made over uninhabited stretches of water. Accessibility would be at least as good as that of the present airports and with helicopter taxi service, it would be better. Most of the other great centers of our country are similarly situated. Why don't we build floating airports to make air travel safer and save our cities? •

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Candles For Christmas

[*Continued from page* 107]

To make fat candles, use tin cans or cardboard cartons for molds. Prepare a tin can for a mold by using a can opener that cuts the top out smoothly on the inside of the can rim. Punch a tiny hole through the center of the cut-out top and thread the candle wicking through it. Tie a knot on the under side and draw the wicking up until the knot is tight against the tin. The wicking material can be either heavy cotton cord or regular wicking salvaged from a melted candle. Drop the can lid with wick attached inside the can. Wrap the free end of the wicking around a small stick or a pencil and rest the stick across the open end of the can. Fill the can with wax. Allow the candle to harden, then loosen it for removal either by chilling it in the refrigerator or by dipping the can in hot water just long enough to soften the wax.

You can cause any of the candles described here to glow as it burns. Melt ¼ lb. of common paraffin in a flat pan. Allow it to cool just enough to form a scum on top, then beat it rapidly with a rotary egg beater to make a fluffy frosting looking like beaten egg white. Before the frosting hardens, daub it on the candle with a fork. Make the layer uneven in thickness. When the candle is lighted, it will glow through the white frosting. The heavier the wicking used, the brighter will be the glow.

Candles can be scented by adding oils or essences to the melted wax. Oil of cedar imparts a delightful odor. Oil of rose, geranium, wintergreen, and others can also be used.

A round candle can be cast in a hollow rubber ball. Cut a slit halfway around the ball and a small round hole at one end of the slit. Wedge a wick cord through the other end of the slit and bring it up through the inside of the ball and out through the round hole. Close the slit with cellulose tape. Rest the ball in a cup and pour wax in the hole. Be careful that the wick does not slip down inside the ball. As the wax sets, it will shrink away from the pouring opening. Keep filling the mold so it will be entirely full when finished. After the wax has hardened, strip off the cellulose tape and peel the ball off the finished candle.

Your favorite ceramic figurine or a child's plastic toy can be made into a candle by first making a plaster mold. Any type of figurine can be used as long as it is of nonporous material and has no undercut surfaces or frail parts extending out from the main portion.

Find a cardboard box that is large enough

to accommodate the figure with at least half an inch to spare all around. Work a small lump of modeling clay into the shape of a cork and stick it against the bottom of the figure. Grease the figure all over with Vaseline or vegetable shortening. Mix up enough plaster of Paris to half fill the box. The mixed plaster should be the consistency of thin cream, neither too watery nor so stiff that it will not pour well. Put the plaster in the box. When it begins to stiffen, push the figure in until it is half immersed. The clay plug should touch one edge of the box as it will form the opening through which the wax will be poured.

When the plaster has set, cut two depressions in the flat top surface to act as keys for locking the finished mold.

In about half an hour, the plaster will be hard enough to finish pouring the mold. Thoroughly grease the top surface and the depressions you have cut. Mix more plaster and pour into the box to fill it. Allow the new plaster to set, then peel off the paper box and use a knife blade to separate the two halves of the mold. They will come apart easily. Remove the figure and the clay plug.

Insert a wick, grease the two halves of the mold, fit them together, and secure with cord or a rubber band. Turn the mold upside down and pour in melted wax. As the wax shrinks down in the pouring hole, add more. Allow the wax to set but not become completely cold. Take the mold apart and remove the candle. Trim off any uneven wax at the bottom so the figure will stand. Features such as eyes and a mouth can be added with wax crayon.

Melt the crayon by holding the end in a flame for a moment. It softens quickly and can be "painted" on the candle in proper position.

You can make a giant decorative candle by dribbling wax over a cardboard foundation. Use a round or square cardboard box or make a foundation from sections of cardboard joined together with gummed paper. Punch a hole in the top of the form, thread a length of wicking through, and tie a knot on the under side. Melt the wax and allow it to cool until it begins to set. Pour it in a slow stream down the sides of the form. It will gradually build up a sufficient thickness to cover the cardboard completely in a candle-drip finish. When the sides are covered, pour soft wax on the top, building it up to a depth of one half inch.

To give the candle an authentic finishing touch, light the wick and allow it to burn until a shallow pool of wax forms around the wick; then blow it out.

Melted wax that is too pale in color can be intensified by adding colored-crayon shavings. ●

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Inlaid Dresser Box

[*Continued from page* 110]

have at least a 10-in. swing on your lathe. If you own a smaller lathe, use a router.

Turn the lid to 6¼ in. outside diameter x 2½ in. thick and then turn a recess ¼ in. deep, large enough in diameter so that a 3¼-in. lathe faceplate may be fitted to it, to turn the inside of the cover. Remove the faceplate from the disk, remount it in the recess and turn out the inside of the cover. Sand thoroughly while the piece is still mounted.

Cut a piece of ¾-in. stock for the base of the box and cut a piece of scrap the same size for a faceplate and glue the two pieces together. Place a piece of paper between the two pieces when you glue them in order to make separation easier when you have completed the offset turning.

Center the metal lathe faceplate on the scrap-wood faceplate after the glue has had time to dry thoroughly and turn the lip so the lid fits the base with a tight friction fit. This is important as you must now proceed to finish turning the outside of the box. Thoroughly sand the outside surface of the box while still on the lathe.

The two circular compartments may now be either routed or cut by offset turning. To do the latter, remove the metal faceplate and draw a line through the center line of the scrap-wood faceplate. Measure in 2 in. along this line from the outside and draw a 3-in. circle for the larger recess. To make the smaller recess, draw a second line through the center line at a 45° angle to it. Measure 1⅜ in. in from the outside along this line and draw a 1¾-in. circle with your compass. Turn and sand both recesses.

Lay out a 3⅜-in. circle on the piece which is to make the disk. Cut a piece of contrasting wood about 2 in. wide for the letter and position it across the center of the disk. Tack the two pieces of wood together, driving the nails through the waste portion, outside the diameter of the circle. Lay out the initial and cut with a fine-bladed jig saw set at a 5° angle. The top of the initial should be slightly larger for a perfect fit. Glue initial into disk.

Cut a scrap-wood faceplate, fasten it to the disk and turn the disk down to fit its recess in the cover. Remove the faceplate and glue the disk in place. Fit the lid to the base again and sand and finish the box on the outside.

Cut a recess for the lipstick with your router and finish the inside of the box with hand-sanding, a few coats of shellac and a coat or two of wax. If you prefer, you can finish the dresser box with two coats of clear lacquer. Sand lightly between coats.—*Elma Waltner* •

Wiring In Your Home

[*Continued from page* 120]

heater, heating plant, and clothes washer. If the house measures between 1,000 and 1,500 sq. ft., circuits should be added for a clothes dryer and a food waste disposer. A larger home, containing up to 3,000 sq. ft., should have circuits for a dishwasher and a bathroom heater. And the acme of electrification would include circuits for an air-conditioning unit and an electronic air cleaner. If you expect to use power tools drawing heavy loads, they should have their own, separate circuit.

Care in determining the number and location of outlets is of utmost importance. By having an adequate number of outlets, long extension cords will not be necessary. Extension cords are doubly hazardous—they can be tripped over and there is danger of short circuits if they become frayed.

Do not make the mistake of basing convenience-outlet locations on a given furniture layout. Interiors are often changed, especially when the house gets a new occupant. Therefore, place convenience outlets so they may serve any practical arrangement of furniture. The outlets should be 12 to 18 in. above the floor in all rooms except the kitchen, dinette, laundry, bathroom, utility room, and garage, where they should be approximately 48 in. above the floor.

In the living room, no point on any usable wall space should be more than 6 ft. from an outlet. If possible, there should be an outlet for a clock in the top of the fireplace mantle. In the dining room, no point on any usable wall space should be more than 10 ft. from an outlet. There should be a floor outlet under the table.

A convenience outlet is needed in the utility room near the furnace. Since the utility room often is also the homeowner's workshop, special outlets should be provided for power tools.

We have been able to touch only briefly on but two phases of the home-wiring story—circuits and convenience outlets. For additional information on such aspects of the subject as lighting, switches, control centers, wiring sizes, and voltage drop, we recommend that you read Home Wiring Handbook, a $1 volume published by the Westinghouse Electric Corp., Pittsburgh, Pa. All of the technical information in this article was taken from that handy little book. Another recommended source of information is the National Adequate Wiring Bureau, 155 E. 44th St., New York. This organization is interested in improving wiring practices throughout the building industry and will therefore provide valuable free advice on all your wiring problems. •

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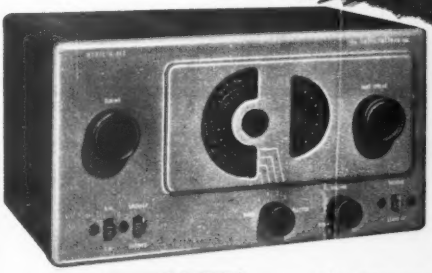

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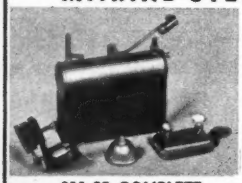

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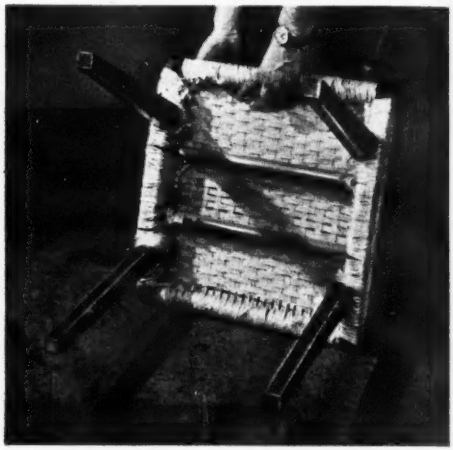
Fireside Seat

[*Continued from page* 122]



Notice that the nails are driven along all four sides. Your weaving material is looped around the nails.

and anchored by means of hardwood wedges driven into the end saw cuts. The two end dowels are 1¾ in. thick. They are tenoned and glued into mortises in the horizontal members. When all the glue has dried, drive finishing nails around the inside of the frame to support the woven seat.

A variety of materials may be used for the seat. Rawhide thong, narrow leather belting, linen or cotton webbing, rush, rope and twine are all good. Twine known as sisal was used in this unit.

Apply whatever finish will be used on the wooden frame before weaving in order to eliminate danger of soiling the seat. Oak stain followed by varnish was used here.

Get as much tension into the weaving as possible. If webbing, rope or twine is used, wet the seat when the weaving is finished. This causes shrinkage and greater tension. If the job is done right, the seat should "sing" like a tennis racquet.—*Bertram Brownold* •

Using a battery-powered outboard motor, this handsome model really performs beautifully. Construction is mostly of balsa, with plywood added where extra strength is required. For your copy of these complete, full size plans, remit 50 cents to MECHANIX ILLUSTRATED Plans Service, Fawcett Bldg., Greenwich, Conn. Please specify Plan No. 420.

Build Sportster

[*Continued from page* 141]

the center line of the boat and at the ends of the cockpits. All grain should run fore-and-aft. Mark the panels, cut to shape, and secure with 1-in. No. 6 screws on 2½-in. centers.

Install seat risers where shown, screw-fastening them to the frames. Add back supports of similar material. Screw the seats and the slatted seat backs in place.

The flooring is ¼-in. plywood laid on the bottom frames. Add the ¾x1⅛-in. sheer moldings and the ¼x2-in. coamings. Finish with three coats of paint inside and out. •

BILL OF MATERIALS

(Approximate Quantities Required)

Specify that all materials are to be used for boatbuilding. All plywood is to be exterior grade. All wood is to be air-dried to a maximum of 15 per cent moisture content. All hardwood is to consist of first, second, and select grades only. All softwood is to consist of A and B grades only.

Plywood

Transom: 1 panel, ¾" x 19" x 4'-6"
Planking: 3 panels, ¼" x 4'-0" x 8'-0"
OR 2 panels, ¼" x 4'-0" x 12'-0"
Decking and Flooring: 3 panels, ¼" x 4'-0" x 8'-0"

Common Lumber (Fir, Yellow Pine, etc.)

Building Form: 1 piece, 2" x 10", 12'-0" long

Mahogany, White Oak, or Longleaf Yellow Pine

Seats: 4 pieces, S2S ¾", 8" wide, 4'-0" long
Seat Backs: 2 pieces, S4S ¾" x 4", 4'-0" long
8 pieces, S4S ¾" x 2½", 4'-0" long
Molding: 2 pieces, S2S ¾", 1⅛" wide, 14'-0" long
Coamings: 2 pieces, S4S ¼" x 2", 10'-0" long

White Oak or Longleaf Yellow Pine

Stem: 1 piece, S2S 2", 12" wide, 34" long
Transom Motor Board and Beams:
1 piece, S2S ¾", 12" wide, 12" long
1 piece, S2S ¾", 6½" wide, 3'-0" long
Bottom Frames: 1 piece, S2S ¾", 9" wide, 2'-6" long
1 piece, S2S ¾", 6" wide, 4'-0" long
1 piece, S2S ¾", 5" wide, 4'-8" long
1 piece, S2S ¾", 4" wide, 10'-0" long
Deck Beams: 1 piece, S2S ¾", 8" wide, 4'-6" long
1 piece, S2S ¾", 7" wide, 10'-0" long
1 piece, S2S ¾", 5½" wide, 8'-0" long
Keel Apron: 1 piece, S4S ¾" x 3½", 11'-0" long
Side Frames: 1 piece, S4S ¾" x 3", 16'-0" long
Chines: 2 pieces, S4S ¾" x 1¾", 14'-0" long
Bilge Keels: 2 pieces, S2S ¾", 1⅜" wide, 5'-0" long
After-Cockpit Beam Supports:
4 pieces, S4S ¾" x 1¾", 18" long
Seat Risers and Back Supports:
5 pieces, S4S ¾" x 1½", 3'-0" long
Keel: 1 piece, S4S ¾" x 1¼", 11'-0" long
Carlings: 2 pieces, S4S ¾" x 1¼", 8'-0" long
Bilge Battens: 4 pieces, S4S ¾" x 1⅛", 10'-0" long
Clamps: 2 pieces, S4S ¾" x 1", 14'-0" long
Deck Battens: 5 pieces, S4S ¾" x 1", 5'-0" long
Outer Stem: 1 piece, S4S ½" x 1¼", 3'-0" long

Miscellaneous

1 pound, 1¼" galvanized shingle nails
6 gross, 1" No. 6 galvanized flathead wood screws
5 gross, 1" No. 8 galvanized flathead wood screws
7 dozen, 1¼" No. 8 galvanized flathead wood screws
3 gross, 1½" No. 8 galvanized flathead wood screws
7 dozen, 2" No. 8 galvanized flathead wood screws
1 gallon, marine paint for topsides and interior
2 quarts, marine paint for bottom
1 pint or ½ pound, resin glue
1 pint, liquid marine glue

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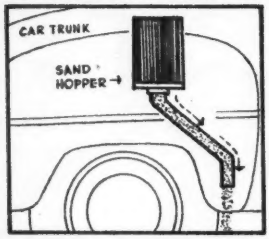

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Send 10c for catalog of 3000 novelties, gadgets, funmakers, etc.

Table Top Hobby Saw

[*Continued from page* 127]

The next step is to attach the saw to the metal table top, then use it to cut its own opening in the Masonite. This should be done at all positions of the bevel tilt from 0 to 45°.

Aluminum angle on the front and rear edges not only improves the appearance, but also makes an accurate guide for the rip fence. Both must be notched for the miter gauge opening. The front piece is mounted with four wood screws; the rear one is drilled for the same number of screws except that the two outer ones go through oval-shaped holes that permit alignment of the rip fence. Use only these two outer holes at this time as the center two are put in after adjustments have been made.

Remove the Masonite top and securely fasten each of the four 8¼-in. legs with a No. 12 2-in. flathead screw and four 2-in. brads. Rubber feet will protect surfaces and will also provide friction to hold the saw table in place while in use. Replace the Masonite top. By a special arrangement with a manufacturer, MI readers may obtain four 8-in. metal legs, as shown in the photographs, complete with gussets and bolts, for $2.50. The complete address will be sent on receipt of a stamped self-addressed envelope.

Materials for making a simple rip fence are as follows: 2 pieces 1x1¼x4 in. aluminum angle; 1 piece 1x1¼x18¾ in. aluminum angle; 1 piece ¼x¾x4 in. cold-rolled steel (for added support to the front piece); 1 piece ¼x4 rod; 2 rivets ⅛x½ in.; 8 tinner's rivets, 2-lb. size.

Drill a No. 29 hole in the center of each end of the ¼x¾-in. piece, and countersink. Clamp this to one of the 4-in. angles on the 1-in. side, then drill matching holes through the aluminum and rivet together.

Next drill through the exact center of the steel and the aluminum with a No. 7 drill and tap for a ¼-20 thread.

Clamp the 18¾-in. piece to this unit and square with the front edge of the table. Drill four No. 26 holes and rivet together. Square the remaining 4-in. piece of aluminum along the rear edge and repeat. The assembled part should now look like a very wide, fat, capital H. Leave about a $\frac{1}{16}$ in. clearance so that the fence will move freely.

Cut a ¼-20 thread about ¾ in. long on the ¼-in. rod. Screw this in the front piece and tighten until the rip fence is rigid, then bend to the right so that it will not project above the table top.

A miter gauge may be made but it was thought advisable to purchase one to insure accurate work.

The final operation is to give the wood surfaces a couple of coats of gray enamel. When dry, you have a table saw that anyone would be proud to own. It may be used with the 4-in. combination blade furnished. A rip blade and also a blade for cutting soft metals may be obtained from the manufacturer.

A similar table saw, but one that is not adjustable for tilt or depth, can be made from the Fedco Saw-Rite Jr. circular saw attachment with direct drive. The construction of the top is the same as for the senior model except for the blade opening. If a Skill drill is used, the opening for it will be in a bottle shape 5 in. high, the base 2½ in. wide and 3 in. high, and the neck 1½ in. wide and 2 in. high.

The opening for the saw attachment should be cut to align with this and the metal top should be recessed flush with the surface of the wood. The drill is then "boxed in." A hinged piece of wood across the bottom is adjusted for tightness with a wing nut and permits removal of the drill for other uses. Legs for this saw may be cut down to 5½ in. long, as the drill takes up less space under the table. The Masonite top, the aluminum edges, and the rip fence are exactly the same as those on the senior model.—*Clarence A. Martin.* •

No Room For A Layout?

[*Continued from page* 128]

panel is made of ¾x1¾ in. white pine, and measures 12x9x1¾ in. (see drawing). It houses the electrical switches for controlling the rail switches, lights and accessories. The rectifier is bolted in the upper right hand corner; transformer is in lower right hand corner.

All the wires in the layout are brought to a Jones-type plug (they are available for connecting up to 16 wires). By using a common ground, a considerable amount of wiring can be eliminated. A plastic telephone wire protector may be purchased at the dime store and can be used as a cable to hold all the wires together that lead from the control panel to the layout.

The shelf shown is very simple to build and yet is very important, as it serves a double purpose. One, it locks the display in an upright position, and two, it displays the trains when they are not in operation. It is 57 in. long and 5½ in. wide, made of ¾ in. plywood. Nail ¼x1 in. molding along the outside edge, keeping it flush with the bottom. Attach the shelf to the wall with four 3 in. L-brackets.

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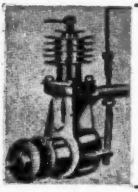

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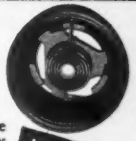

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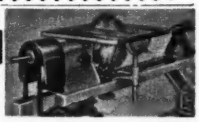

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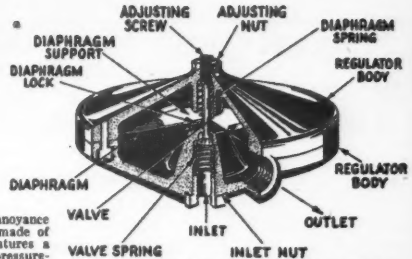

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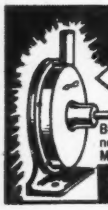

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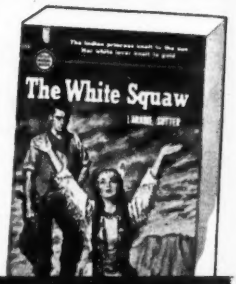

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Telescope Maker's Page

[*Continued from page* 150]

effort expended—and the pleasure.

I consider it best to start with the making of the mirror which is the heart of the instrument. A six-inch diameter mirror is large enough for a first venture. Secure a six-inch pyrex blank for the mirror and a piece of plate glass of the same diameter for a tool. With the glass and abrasives on hand, carefully follow the instructions as furnished by MI in their Plan P-5 or the directions as described in the book, The Amateur Telescope Maker, published by the Scientific American. Let me again emphasize the necessity of following the grinding, figuring and polishing directions in every minor detail, as the few extra hours it may take to put those last finishing touches spell the difference between success and mediocrity. The mirror should be aluminized, which is far more satisfactory than a quickly tarnished silver coat.

The mirror has a focal length of 54 inches. The focal length should be predetermined at the time of grinding and polishing. The tube for the scope is of No. 24 gauge sheet iron, 7 in. in diameter and 60 in. long. It is coated on the inside with dull black paint.

—*Mark C. Calkins* •

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Custom Camera Case

[*Continued from page* 144]

always seem to be added at the last minute. The over-all size is only 7¼ in. wide by 17 in. long and 10 in. high.

Use a file and sandpaper to make all surfaces smooth and to round off all sharp corners in preparation for the leather covering. Cut the pigskin for the cover, the front, back, ends and bottom. Remember to allow enough for lapping and to run over the top and down about ½ inch inside of the case (where you left the felt unglued). Measure carefully and recheck as joints on the surface are unsightly. Two coats of rubber cement are needed on both the wood and the leather. Start on an edge and carefully apply the leather to the wood with a rolling motion. Make sure not to have any wrinkles or air pockets. All excess cement on the surface must be rubbed off so that the dye (which is applied later) can penetrate the leather. Now install hardware.

The felt around the upper edge of the case can now be glued down over the leather and over the nuts. A felt lining will improve the appearance of the inside of the cover. (Supplies can also be carried in the cover by the addition of clear plastic doors.)

Two coats of black leather dye will insure complete penetration through the pigskin covering. After it has had sufficient time to dry, the surface should be thoroughly brushed to remove any excess dye from the surface. Fixatif, a type of lacquer used for charcoal and pastel drawings, sprayed over the entire surface will seal in the dye and give the surface a smooth, satiny finish. Paste wax, well rubbed in will produce a higher gloss if desired. So, how about starting your case right now! •

BILL OF MATERIALS

Case:

Ends—2 pcs 7/16 x 6¾ x 8¾
Sides—2 pcs 3/16 x 8¾ x 16⅞
Bottom—1 pc 3/16 x 7⅛ x 16⅞

Partitions:

1 pc 3/16 x 5 x 5⅛
2 pcs 3/16 x 6 x 6¾
1 pc 3/16 x 6 x 8½
2 pcs 3/16 x 3 x 4-9/16
1 pc 3/16 x 3 x 2-7/16
1 pc 3/16 x 3 x 2-15/16

Cover:

1 pc 3/16 x 7-5/16 x 17
4 pcs 7/16 x ¾ x 6¼
2 pcs 7/16 x ¾ x 17
1 pc ⅛ x 1¼ x 17¼
2 pcs ⅛ x 1¼ x 17¼
2 pcs ⅛ x 1¼ x 7-7/16

Misc.:

6 sq. ft. pigskin, 1 sq. yd. green felt, 2 butt hinges 2" (or 16½" piano hinge), 1 handle, 2 hasps, black leather dye, Fixatif, wood screws, brads, glue, machine screws and nuts, felt cement, rubber cement.

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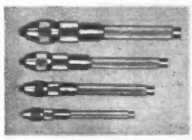
Precision made by Starrett craftsmen for aircraft and electronic instrument mechanics, model makers, watch and instrument repairmen, office machine servicemen, jewelers, opticians, etc. Six sizes (.025", .040", .055", .070", .080", .100" blades) with hexagon swivel top, knurled handle. Replaceable blades held in quick-acting, firm-lock chuck. Grooved ends identify size. See them at your Starrett Tool distributor's.



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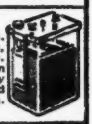

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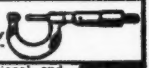

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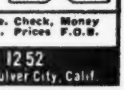

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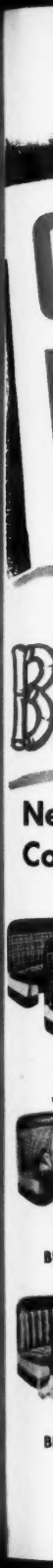

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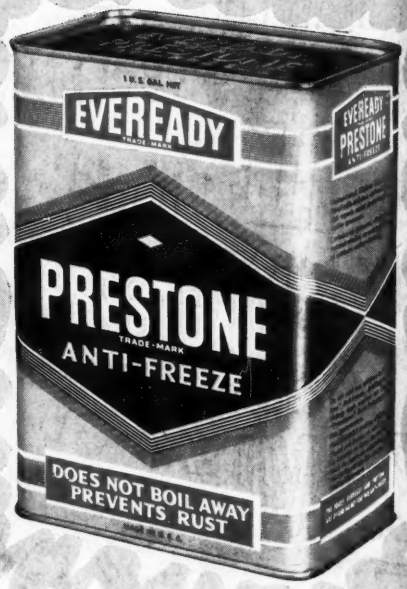

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